THE IRON AGE

THURSDAY, JULY 26, 1888.

The Bartlett Propeller.

Marine engineers particularly will be interested in the new form of screw propeller illustrated on this page, and designed by John E. T. Bartlett, of 253 West Fourteenth street, New York. During a recent visit to the Delamater Iron Works, where the propeller is turned out for Mr. Bartlett, who, we should add, is connected professionally with the works, we had an opportunity of examining more closely the features of the design; in the main these are very well represented in our engravings.

The improvement, as a glance will show, is in the shape of the propelling surface of the wheel blades, the aim being to give the water driven astern a direction parallel to the axis of the driving shaft, and also to prevent the water from being raised by the centrifugal force generated by the angular velocity of the propeller. Mr. Bartlett sought further to gain length of blade with given diameter, and to thus diminish the frictional resistance to be overcome by the engine in rotating the wheel at a given angular velocity. This resistance increases as the square of the distance from the axis. Local surface disturbance and currents were also to be avoided, all of which requirements seem to be met by the helicoidal parabolic surface of revolution which Mr. Bartlett adopted. It will be observed in Fig. 5 that a plane passed through the axis of the propeller shaft will intersect the blade of his design in a parabolic curve. This is designated by the figures 2, 0, 2 in Fig. 1. The base line of abscissae, marked 1, 0, 1, for determining the curve is assumed to pass through the center line 3 3 of the shaft, and midway of the length of the propeller hub. As many ordinates as may be necessary for accuracy in determining the curve are calculated, with the varying diameter values d, d_1, d_2, d_3, &c., using the parabolic formula $h = \frac{d^2}{x\,f}$, h representing the value of one ordinate, f the focal distance and x a constant. The driving surface will be a parabolic surface generated by the revolution of a semi-parabola, 0 2, whose vertex is 0, around the longitudinal axis 0 3, having at the same time a motion of translation, positive or negative, in the direction 0 3, equal to the required pitch of the propeller. In Fig. 5 the lines s s indicate the flow of water to the wheel, partaking as it does of the contour of the run of the ship, as is actually the case in practice. After the particles of water have passed behind the blades the wheel will drive them, as previously stated, in a direction parallel to the axis of the shaft. The reason is readily apparent. The motion must be in either one of two directions in virtue of the influence of a parabolic reflecting surface, and, as the water is incompressible, it cannot b forced to the focus F, and must, therefore, follow the lines d d. Mr. Bartlett explains that the air in the water behind the wheel will be compressed so that the latter will work in solid water, and less vibration will be occasioned by it than by other forms. The driving surface will act on the same principle as sound and light reflectors similarly constructed. Any particle of fluid passing behind the leading edge A of the propeller-blade will be forced back by the advancing surface of the propeller and the superposed particles prevented following or flowing off the blades by the reflect-

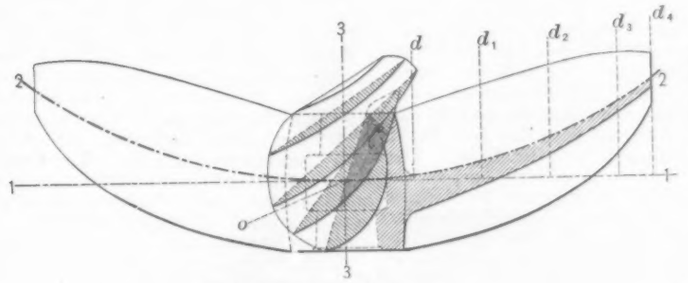


Fig. 1.—Section and Plan.

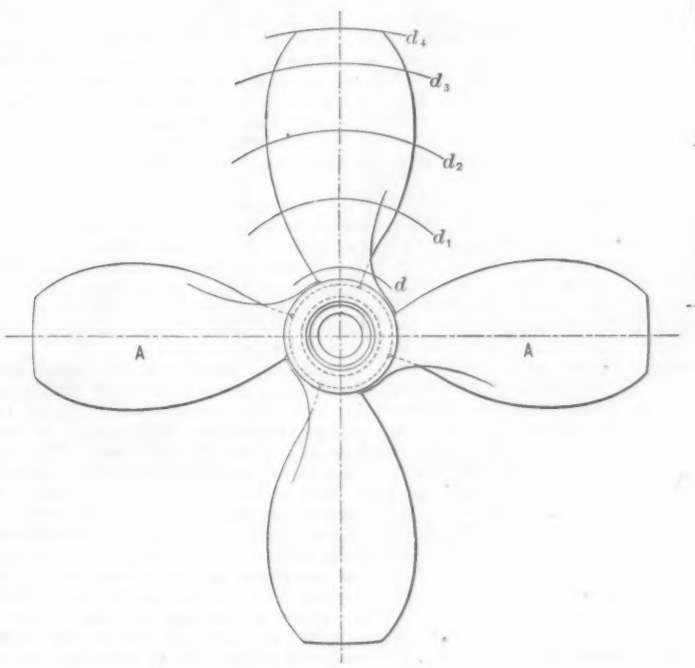


Fig. 2.—Front Elevation Looking Aft.

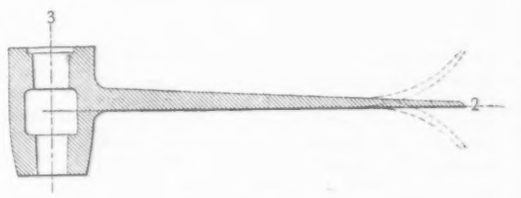


Fig. 3.—Section through Blade of Common Propeller.

Fig. 4.—Section through Blade of Centripetal Propeller

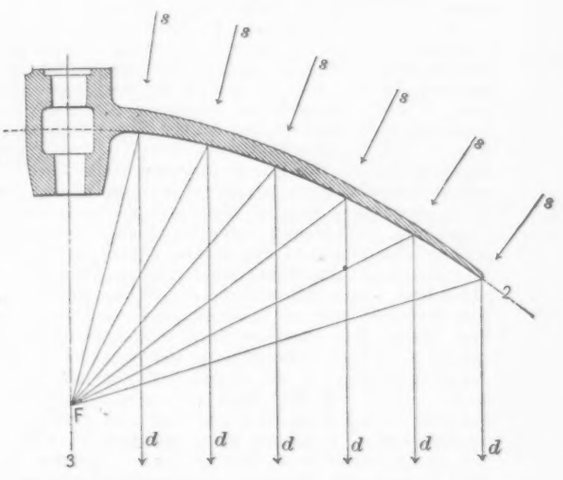


Fig. 5.—Section through Blade of Bartlett Propeller.

IMPROVED FORM OF SCREW PROPELLER, BUILT FROM DESIGNS BY J. E. T. BARTLETT, NEW YORK.

ing surface. Before any particle can acquire centrifugal force from contact with a rotating surface of high velocity it will have been left behind by the advancing propeller. Having no tendency to rise to the surface it will be reflected parallel to the axis of the shaft, as the least resistance is in the direction of the wake of the vessel. The increase in length of blades is clearly shown on the right-hand blade, Fig. 1, the length gained being the difference in length of the curved line 0 2 and the straight line 0 1.

Mr. Bartlett claims that the propelling surfaces which he adopts prevent the water from flowing off radially or tangentially, and that hence there are no waves on the surface caused by the rotation of the wheel. There would consequently be no tendency to wash away banks or scour the bottoms of waterways of small sectional area. We understand that trials with the propeller on several launches have shown it to give an appreciable increase of speed over that attained by the ordinary form of wheel, and to make as little commotion in the wake as is produced by the passage of a vessel under sail. The importance attached to both these points need not be emphasized. At present preparations are being made for fitting up a wheel for a 60-foot launch for the New York *World*, and the performance of the boat will be watched with interest.

The Russian Oil Pipe Line.

Referring to the contemplated construction of the Russian crude oil pipe line from Baku to Batoum, we find the following in *Engineering*, of London:

The promoters of the scheme are understood to have failed in their attempts to obtain funds for its construction in Paris, and of course, in the present condition of European politics, they are not very likely to be more successful at Berlin. The sum required for the undertaking is large—about £2,000,000—and the enterprise is handicapped by the fact that all the pipes must be manufactured in Russia, notwithstanding that at the present moment no pipe works exist there capable of turning out a short pipe line, let alone one 600 miles long. What has, however, chiefly impeded the success of the scheme up to now has been the bitter enmity of the Nobel firm, whose influence against it has been extended even to financial quarters. The Nobel firm carry on their refining operations at Baku, where they possess one of the largest, if not the largest, refinery in the world, and they have always opposed the laying down of a pipe line that would allow of petroleum being pumped in a crude condition to Batoum, and refined there under far more advantageous conditions than is possible at Baku. On this account, seeing their interests at Baku are imperiled by the crude pipe line scheme, they have maintained against it a war to the knife, and sought to promote instead a kerosene pipe line, or a pipe line that would pump only the refined product from Baku to the Black Sea.

In connection with this, we stated some time ago that it had scored an advantage by obtaining permission to put down the first section of the kerosene pipe line across the Suram Pass. Financial arrangements were being made to carry this through when Mr. Ludwig Nobel suddenly died. The result of this has been a check to the kerosene pipe line scheme also, and there is no present prospect of either it or the rival project being promptly carried out. Probably as soon as the Nobel firm is placed under new leadership, the kerosene pipe line will come to the front again, particularly as there are no onerous conditions attaching to its construction, and the demand for it is pressing on the part of the oil exporters at Baku. With regard to the crude oil scheme the largeness of the sum required is a serious obstacle, and we should not feel surprised if the Elimoff concession fell through. This would not imply an abandonment of the idea on the part of Russia. On the contrary, the Government, in that case, would probably decline to construct it itself. From next January the Transcaucasian Railway from Baku to Batoum will become a State undertaking, and the construction of a pipe line would fall naturally to the control of a State department managing the petroleum traffic on the railway.

Monster Bridge Project.

New York City has been startled by the sudden introduction in Congress of a bill providing for the construction of an enormous suspension bridge across the River, between New York City and the North New Jersey shore. The bill referred to was introduced into the House June 27 by Mr. Cox, and is identical with that introduced in the Senate July 2 by Mr. Quay. The scheme is a most formidable one, as the proposed bridge, according to the designs of Gustav Lindenthal, the bridge builder of Pittsburgh, Pa., will cross the river in a single span 2860 feet in length, which is 1310 feet longer than that of the Brooklyn Bridge, and the weight of materials used must necessarily be more than double, far surpassing in all respects any similar structure now extant. The entire cost of such a work can only be estimated from imperfect data, as a difference of several millions must depend on the final choice of a terminus on the New York side, but, while the projectors of the scheme claim that $16,000,000 will suffice, other engineers, perhaps not less competent, have named as high a figure as $40,000,000. The plan is now on exhibition in the rooms of the House Committee on Commerce at Washington, and the incorporators named are: James King McLanahan, Jordan L. Mott, Henry Flad, J. Canda, James Andrews, Thomas F. Ryan, Gustav Lindenthal and William F. Shunk. All the parties are well known and pecuniarily responsible. Jordon L. Mott is the large iron manufacturer of this city. James King McLanahan is a wealthy iron manufacturer of Hollidaysburg and Johnstown, Va. Henry Flad is president of the Board of Public Improvements of the city of St. Louis, was intimately connected with Captain Eads in the construction of the St. Louis Bridge, and was formerly president of the American Society of Civil Engineers. Charles J. Canda is the vice-president of the Western National Bank, of this city, and was formerly United States Assistant Treasurer here. James Andrews is a contractor of repute. He built the piers of the St. Louis Bridge and the works at the jetties of the Mississippi River. He is the successor of Captain Eads in the Tehuantepec Ship Railway project. William F. Shunk is a civil engineer, who was formerly chief engineer of the New York Elevated Railroad. Thomas F. Ryan is a banker of this city, of the firm of Smith, Oakman & Ryan. The author and projector of the proposed bridge, Gustav Lindenthal, is a member of the American Society of Civil Engineers, and his name is already identified with several important works in various parts of the country. Three of the bridges at Pittsburgh are evidences of his skill.

The bill authorizes the persons above named and their associates to build and operate a bridge across the Hudson River for the passage of railroad trains and other purposes, provided that said bridge shall be constructed with a single span over the entire river between the established pier lines in either State, and at an elevation over the river of at least 140 feet in the clear above the level of ordinary high water, and that this minimum hight shall be exclusive of the deflections of the superstructure from loads or temperature effects, and that no pier or piers or other obstructions to navigation, either of a temporary or permanent character, shall be placed or built in the river between said pier lines under this act. It is further stipulated that all railroad companies desiring to use the bridge shall be entitled to equal rights and privileges "for a reasonable compensation." The diagrams of Mr. Lindenthal's bridge indicate a structure in its main features similar to the East River bridge, except that there are double cables, one set below the other. There is a double tower on either side of the Hudson, with a single span suspended from gracefully bending cables. The length of the middle span is to be 2850 feet from center to center of the towers, and the length of the end spans 1500 feet each, making a total length, including the anchorages, of nearly 6500 feet. The towers are to be 500 feet high and will stand on masonry piers 340 by 180 feet, 25 feet high above high water, with foundations on rock. The towers will be of wrought iron and steel, containing 16 columns each. These columns are to be composed of angles and plates, all octagonal in shape and tapering from 7 feet in diameter at the base to 5 feet at the top. The columns are to be strongly braced together inside with heavy bracing and outside with lattice filling. The anchorages are to be each 320 by 180 feet and 210 feet high above high-water line. The six railroad tracks pass through a tunnel in each anchorage. The cables are to be 50 feet apart, strongly braced together to resist the deforming effects of heavy loads. Each cable will have a diameter of 4 feet. The steel wires forming the cables are to be inclosed in steel envelopes to protect them againt the weather. An air space of 2 inches is to be left between the steel envelopes and the wire, for the better protection against the heating of the sun and to prevent unequal temperature effects. The designer says that in ordinary travel the proposed bridge would be strained only to about 10 per cent. of the maximum load for which it is designed.

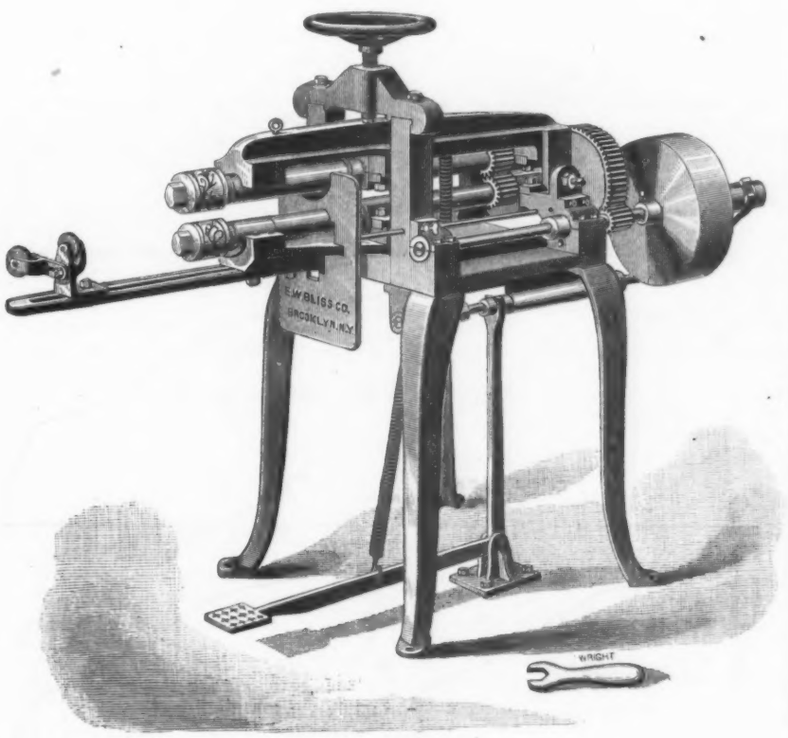
It will be observed that the single span sustained by piers to be kept within the pier line, with a maximum hight of 140 feet above ordinary high water, at once disarms all hostile objection. The one question to be determined is the feasibility of the undertaking. This settled, the approval of the Secretary of War will be only a formal act. That eventually the Hudson River will be bridged for commercial purposes as completely as is the Thames, at London, cannot be doubted. It remains to be seen to what extent it may be necessary to utilize the rocky bluffs on either side in securing the desired elevation.

Portable Rail Saw.—Messrs. Manning, Maxwell & Moore, 111 Liberty street, New Uork, are putting on the market a portable rail saw designed by Mr. E. C. Smith, of Brooklyn. A machine was made by Mr. Smith early in 1885 with which he cut a 60 pound rail in 35 minutes. As improved and now put on the market, it is said to be capable of cutting a 70 pound rail from 10 to 12 minutes. It will cut off a section as thin as ¼ inch, leaving the end of the rail smooth and true. Those who have used the saw speak well of it. It is operated by hand by means of two levers on opposite sides of a pivoted frame in which the saw blade is fastened. The feed is automatic. The blade is carried on pins in the frame.

The Baker Engine and Machine Company, of Geneva, Ohio, have been incorporated, with a capital stock of $100,000.

New Beading Machine.

Manufacturers of Russia iron stove bodies and other similar articles of a cylindrical shape have experienced much difficulty heretofore in making bands of fancy embossed work, with a clear and sharp impression. The machines used for this work have not been sufficiently heavy to bring about satisfactory results. These difficulties have been completely overcome by the recent introduction of a powerful beading machine, illustrated on this page, valuable for beading, swedging and embossing sheet iron, stove bodies, stovepipe, powder kegs and other articles of a like character. It is made by the E. W. Bliss Company, of Brooklyn, N. Y., and weighs about 800 pounds. The beading or embossing rolls are fitted on the outer



NEW BEADING MACHINE, BUILT BY THE E. W. BLISS COMPANY, BROOKLYN, N. Y.

ends of steel shafts, 2½ inches diameter, 4 inches center to center, with bearings in the frame of the machine extending near to the rolls, thus giving a good support for heavy work. An adjustable apron gauge admits of beading work up to 14 inches from edge. An outer support for the work is provided with adjustable rolls for cylinders of different lengths and diameters, and may be removed entirely if desired. The two shafts are connected by steel-cut gears, and upon the outer end of lower shaft is mounted a cut gear 12 inches in diameter, driven by a 3-inch pinion upon a back shaft, which is also provided with a powerful friction clutch pulley, 14 inches diameter by 4-inch face. This clutch is connected with a treadle, which gives the operator complete control of its action. That part of the frame carrying the upper shaft is pivoted at the back end, the rolls being brought together by a screw and hand-wheel, and when released, strong spiral springs inside the frame separate them again.

A novel method of locating a leak in a water main was employed recently at Rochester, N. Y., with entire success. The break in the main was known to be between the banks of the river. A solution of bi-permanganate of potash was introduced at a hydrant on the side of the river nearest the reservoir, and observers were stationed on the river along the line of the main. A deep reddish purple discoloration of the river water at one point soon made the exact location of the leak apparent.

The Monitors.

One of the officers of the U. S. Steamship Boston, writing to the New York *Times* recently on the United States Navy, refers in the following interesting manner to the monitors:

Notwithstanding all the inventions and improvements in naval warfare during the past 20 years, the monitor is by no means an obsolete type to-day. On the contrary, it embodies many of the most essential features of a strong coast defender. The only respect in which it failed during the war, as shown by the official reports of all commanders, was in close range fighting against shore batteries and earthworks having a plunging fire and mounting a large number of guns. At long range the result was always different, and in every instance of fighting against other types of ships the monitor was uniformly victorious. Now, as the duty to which we will assign the monitor in the future will be mostly that of coast defense (fighting an attacking squadron), the one weakness developed in the past will not militate against it. The monitors were seldom pierced or permanently disabled during the war, though frequently subjected to a terrible hail of heavy projectiles. To be sure, there has been a great increase in the penetrating power of modern rifles since the war, but there has also been great improvement in methods of defensive construction, and, with thicker armor on the turrets and sides, double bottoms, and numerous water-tight compartments, our monitor type may still hold its own against the most powerful ordnance.

At the distance of a mile the Chief Constructor remarks that the 30 inches of side exposed subtends an angle of only 2 feet, and the turret an angle of but ¼°. The chance of hitting this mark is, therefore, very small, and shot striking short may ricochet harmlessly over her decks. The 10-inch rifle will pierce 23 inches of wrought iron at the muzzle and 17½ inches at the distance of a mile, and, as the Chief Constructor safely concludes, our present monitor may tackle the most powerful ships afloat. Their light draft and low hulls, as compared with other ships, give them a tremendous advantage, since they can lie in shoal water along our coasts, in the Chesapeake and Delaware Bays, and off our big cities, where the deep draft of ships of an enemy cannot follow, and thus keep up a destructive and harassing fire. Great speed is therefore not so vitally necessary with such a coast defender, since its light draft would enable it to choose its distance in most cases. An enemy would be compelled to send against us large, sea-going ships of high freeboard and great coal-carrying capacity, to enable them to sustain themselves for any length of time on our coast, and these ships, drawing much more water and offering a large target to shoot at, would be at a great disadvantage in fighting a monitor.

For the defense of New York no type would be more efficient. The shoals off Sandy Hook, along the Long Island shore and between the main ship channels would afford safe cruising ground for our light-draft sentinels, while torpedoes could be planted as thick as desired in the path the deep-draft enemy would be obliged to follow. There are no ships afloat to-day which carry such powerful guns with the light draft of the monitor. The Devastation, Thunderer and Dreadnaught, England's seagoing monitors of high freeboard, and all the more modern and powerful ships draw from 24 to 30 feet of water, which would compel them to maneuver with care in the vicinity of shoals.

If monitors are to be built in the future purely for coast defense their coal and provision carrying capacity could be reduced to a minimum, thus saving weight which would permit much thicker armor on turrets and sides for these floating batteries assigned for duty off our principal ports. They could run in frequently for coal and provisions at rendezvous well selected in shoal water where the enemy could not follow. To sum up, the monitor is a superb type, and by giving it a single turret the armor may be increased to 40 inches if necessary (which will defy the 100-ton gun, which pierces about 36 inches), and this with an armored turtle back but 2 feet out of water would make it practically invulnerable and a match for anything that floats.

In the City Court of Birmingham, Bamhill & Co. filed a suit against H. F. De Bardeleben for $20,000 damages. The bill of complaint alleges that the plaintiffs were residents of Belmont County, Ohio, and the owners of a boiler factory. Mr. De Bardeleben induced them to remove their plant to Bessemer, and, as the bill alleges, agreed to give them a deed to one acre of land in the Marvel City. This occurred in May, 1887, and the deed to the one acre of land has never been made, hence the suit.

The length of pipe laid in Paris for the distribution of power by compressed air already exceeds 30 miles. The compressing engines are of 3000 horse-power, and about 3,000,000 cubic feet of air are compressed daily to a pressure of 80 pounds per square inch at an expenditure of 50 tons of coal.

Economy of Naphtha Engines.

As promised in a recent issue we present this week some particulars of tests of a naphtha launch engine, made a short time ago by Messrs. Paul A. Doty and Richard Beyer, at Stevens Institute, and recorded by them in their graduating thesis.

The engine upon which the experiments were made was furnished by the Gas Engine and Power Company, of New York, and was of the type illustrated and described in detail in *The Iron Age* of June 30, 1887, to which it may be interesting to refer. The engine was set up in a temporary building in the immediate vicinity of the institute building and tested several weeks. The pump which forces the liquid naphtha into the boiler is permitted to leak slightly, the liquid which escapes passing by the driving shaft, thus lubricating the bearings, and finally escaping with the exhaust vapor. As the latter is condensed and returned to the storage tank this leakage results in no loss of liquid, the only effect being the necessity of making the bore of the pump slightly larger than would be necessary if there were no leakage. But in order to test the engine it was necessary either to measure the amount of leakage or to prevent it entirely. As the latter could be more easily done the pump was changed accordingly. The dimensions of the engine are given below:

Principal dimensions of Engine and Boiler.

Number of single-acting cylinders.....3
Diameter of cylinders, each.....3¼ inches
Stroke of piston.....4½ inches
Piston displacement.....37½ cubic inches
Area of admission port.....7-32 x 2 1-16 inches
Area of exhaust port.....5-16 x 2 1-16 inches
Inside diameter of naphtha pump....1¼ inches
Stroke of naphtha pump .....1¾ inches
Travel of main valves, each.....⅝ inch
Clearance in admission port..0.366577 cubic in.
Clearance in indicator-pipe..0.981750 cubic in.
Clearance in cylinder.....0.518487 cubic in.
Total clearance for each cylinder, 1.866814 cubic inches, or 5⅛ per cent. of piston displacement.
Floor space occupied by engine..24 x 18 inches
Total hight including stack.....6 feet
Boiler dimensions in spiral coil:
Hight of coil.....12 inches
Diameter of coil.....12 inches

There are seven spirals, each of four coils; inner diameter of smallest coil, 4 inches; coils are of seamless copper tubing, outside diameter of which is ¾ inch. The coil is connected at its lower end to a tube leading to the naphtha pump, and at its upper end to a casting, which joins the coil to a stand-pipe. The stand-pipe is of iron, 1¼ inches inside diameter, 2 feet long. The burner has 26 openings, each $\frac{3}{16}$ inch in diameter.

Six indicator cards were taken from each cylinder with a 40 spring at as nearly uniform pressure as was practicable. It will be observed that in the first and second cylinders there is considerable initial expansion, while in the third the initial pressure is maintained with marked uniformity up to the point of cut-off, which was at half stroke. In all of them the drop at release is very abrupt, the pressure falling at once to very nearly that of the atmosphere. The back-pressure is uniform and small, and the compression line is good. The difference between the cards in the first and second engine and the third one appeared to be due to the working of the valve, although there was not time to examine into the cause.

Results.

The total horse-power developed from the three cylinders was:

	Horse-power.
First cylinder	0.9178
Second cylinder	0.9176
Third cylinder	0.9710
Total	2.8064

The amount of naphtha burned in one hour was 9.89 pounds, and the amount of naphtha per horse-power per hour, 3.53 pounds. The market price of naphtha, June 5th, 1888, the date of the test, being 10 cents per gallon, the cost per horse-power per hour was 6.20 cents. The average number of revolutions per minute was 280.7. The number of cubic feet of water per horse-power per hour used to condense the exhaust naphtha was 135.27. The temperature in the smoke-stack was about 600° F. It was attempted to develop a higher horse-power, but when run at a much greater speed the engines did not work properly. It was inferred that the valves ought to have more lead, or else the pump should be larger, or both these conditions should exist in order to develop the higher horse-power, but the time at the disposal of Messrs. Doty and Beyer unfortunately was too limited to enable them to investigate these points.

Three sets of experiments were made to determine the relation between the pressure and corresponding temperature of the saturated vapor of naphtha. These experiments gave:

At 60 lbs. pressure.....258° F.
" 47 " .....242° F.
" 35 " .....225° F.

which substituted in Rankine's formula (Wood's Thermodynamics, p. 67),

$$com.\ log.\ p = A - \frac{B}{\tau} - \frac{C}{\tau^2},$$

gives, for the continuous relation between the pressure per square foot and the absolute temperature:

$$com.\ log.\ p = 6.47 - \frac{890}{\tau} - \frac{625750}{\tau^2}$$

As a partial test of the correctness of this formula Messrs. Doty and Beyer computed from it the temperature of the vapor for a pressure of one atmosphere, or $p = 2116.2$ pounds, finding $\tau = 602°$ F. absolute, $T = 142°$ F. above the zero of the Fahrenheit scale. An independent test was made in the laboratory to determine the boiling point directly. The boiling point does not appear to be a fixed quantity, owing to the complex chemical composition of the naphtha. In a continuous experiment, extending for one hour, the temperature at boiling rose from 140° F. to 155° F., the mean of which is 148° F. nearly. Under these circumstances the result, 142° F., found by the formula is as good as can be expected.

To find the latent heat of evaporation the exhaust vapor was condensed under atmospheric pressure by passing it through a surface condenser kept cool by a stream of water, whose initial and final temperatures were measured. It was found that the number of pounds of water passing through the condenser per hour was 25594.25. The increase in temperature of this water was 3.9° F., and the number of pounds of naphtha passing through the condenser per hour were 421.28. From this they deduce $25594.25 \times 3.9° = 99817.575$ heat units; $99817.575 \div 421.28 = 236.94$ as the latent heat of evaporation at atmospheric pressure.

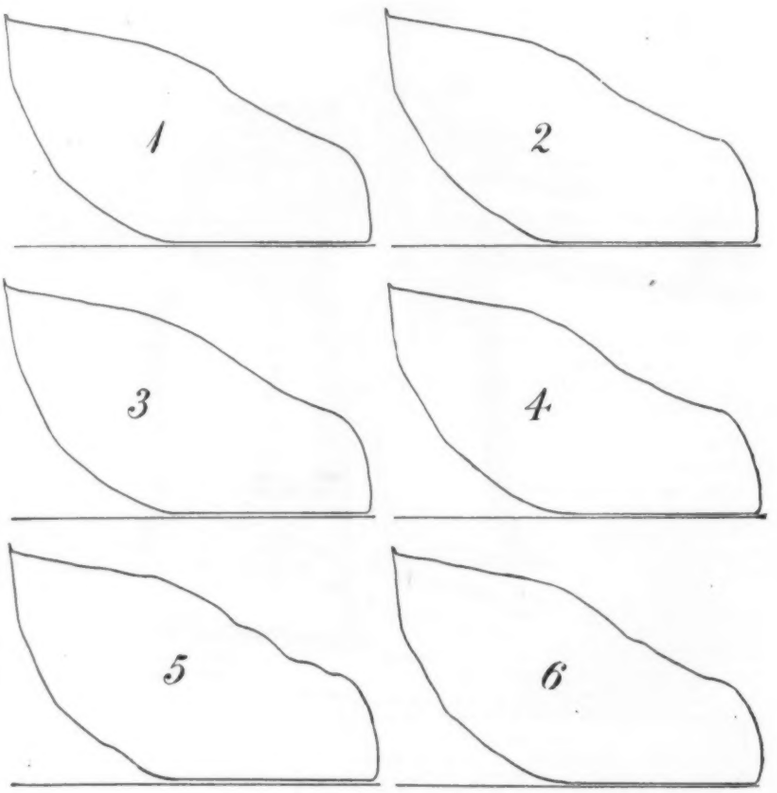


Fig. 1.—Diagrams from First Cylinder.—40 Spring.

INDICATOR CARDS FROM A NAPHTHA LAUNCH ENGINE.

Volume of Vapor.

From equation (84), p. 98 of Wood's Thermodynamics, they have for the volume of 1 pound of the saturated vapor:

$$V_2 - V_1 = \frac{He}{\tau \frac{dp}{d\tau}}$$

$$= \frac{He}{p\left(\frac{B}{\tau} + \frac{2C}{\tau^2}\right) \times 2.3026}$$

which for naphtha vapor becomes

$$V_2 - V_1 = \frac{236.94 \times 778}{24035.5}$$

$$= 7.669 \text{ cubic feet.}$$

The volume of 1 pound of naphtha at 60° F. = 0.0234 cubic feet; therefore,

$V_2 = 7.669 - 0.0234$

$= 7.6456$ cubic feet.

The number of pounds per cubic foot is 24035.5 ÷ 184339.32 = 0.1304 pounds.

One pound of naphtha vapor at atmospheric pressure occupies 7.669 ÷ .0234 = 327.73 times the volume of 1 pound of naphtha at 60° F., while steam occupies about 1660 times its volume as water.

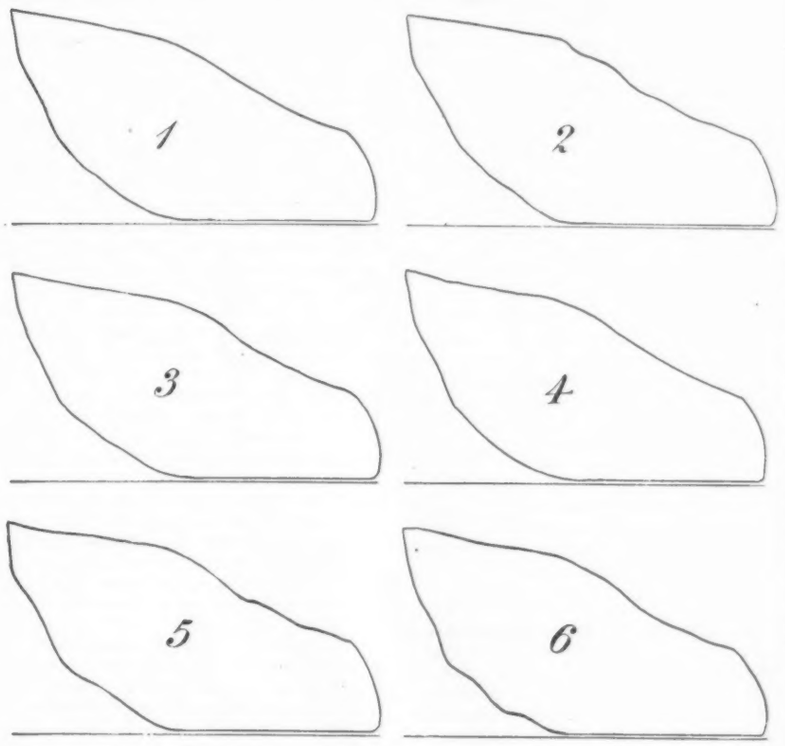


Fig. 2.—Diagrams from Second Cylinder.—40 Spring.

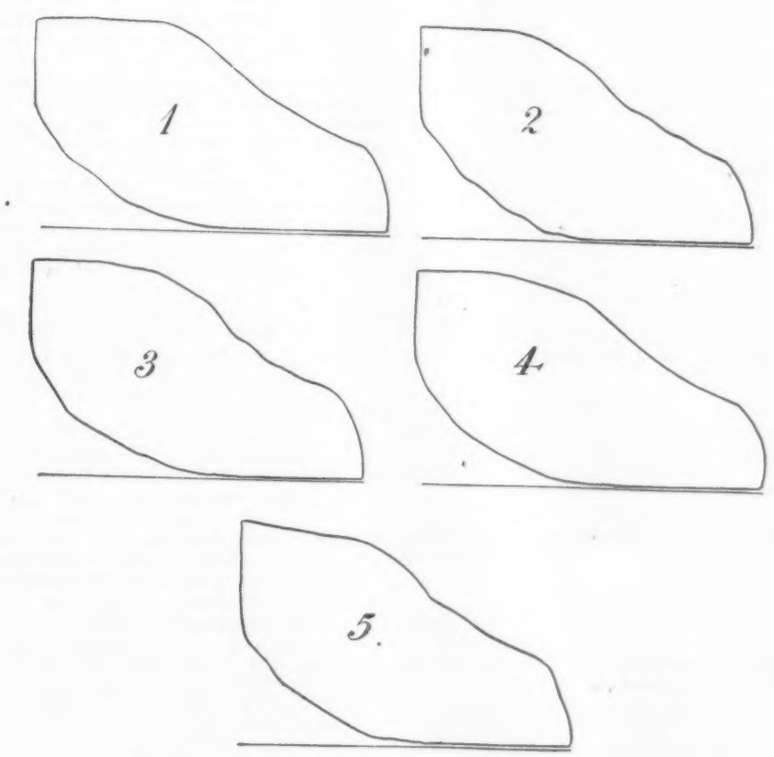


Fig. 3.—Diagrams from Third Cylinder.—40 Spring.

INDICATOR CARDS FROM A NAPHTHA LAUNCH ENGINE.

The great Auditorium building in Chicago is being fitted up with a view to using oil for fuel. The building is so large that an enormous stock of coal would have to be constantly carried to meet its requirements, while oil can be stored a long distance from the building and piped in gradually as it is consumed. The tanks for storing the oil supply will be located on the lake front outside of the tracks of the Illinois Central Railroad, and so far away that no possible risk from their inflammable contents could be incurred. A cleaner and more controllable fuel than coal will also be obtained in this way, which is an important consideration in the minds of the builders of the Auditorium.

The Cruiser Charleston.

The first of the new cruisers laid down by the present Navy Department was launched last week from the Union Iron Works, San Francisco. The Charleston is a twin-screw cruiser of 3730 tons, built of steel throughout, having a length between perpendiculars of 300 feet, a beam of 46, a draft forward of 17½ feet, and a draft aft of 19½. She is double-bottomed under engines and boilers. She has also a curved or turtle-back steel deck from two to three inches thick running from stem to stern, and protecting everything below it, being a foot above load-water line at the crown and then sloping at its edges to four feet below the water. Coal bunkers are so arranged as to furnish further protection. The compound engines are in two separate compartments, and actuate 3-bladed twin-screws. The indicated horse-power under forced draft is 7500, and she is expected to make a maximum of fully 18 knots an hour. At 10 knots an hour her coal will last for 8600 miles, and at 8 knots for 11,000. She has no sail power, however, except storm sails, but has two military masts. Her regular coal capacity is 450 tons, but she can carry 800, with an increase then of 1½ feet in her draft. Her hold is divided into many water-tight compartments by bulkheads, furnishing room for stores, ammunition, chains, and so on. The main battery consists of two high-power breech-loading, 10-inch steel rifles, mounted on central pivots, besides six 6-inch rifled breech-loaders. The secondary battery of the Charleston will consist of rapid-fire Hotchkiss guns and Gatlings, and she will also have a supply of automobile torpedoes, to be launched from tubes mounted above water in broadside.

The Molders' Union.—At the Iron Molders' National Convention which was held in St. Louis recently, it was reported officially that in 1886 and 1887 there had been 22 disagreements between employers and union molders over wages and hours of labor. Of these 12 cases were settled on terms favorable to the molders, 7 were defeats, 1 is still unsettled and 2 continue in active progress. The most notable defeat was suffered in the strike which began in March, 1887, at the stove works of the Bridge and Beach Mfg. Company, of St. Louis. The National Association aided the strikers for the following half year and then withdrew from the contest. It cost Union No. 10 alone the sum of $23,348.40, and built up the Manufacturers' Defense Association in powerful opposition to the workingmen's organization. The strike fund was reported at the recent session to have received during the past year $36,068.93, and to have disbursed $33,833.54 among 18 unions, leaving $2,235.39 on hand. There was a net increase of 3571 members in the year.

According to Prof. R. H. Thurston, there are three great chances left for inventors—viz., the production of electricity directly from the combustion of coal or similar fuel; secondly, the production of light without heat, as in the case of the light of the firefly and that of the glow-worm; and, thirdly, the production of a successful air ship.

The Blake and Blenheim, two of the latest English cruisers, have been designed for speeds of 22 knots per hour.

Recent Customs Decisions.

DUTIES ON THIN SHEETS OF STEEL.

The Secretary of the Treasury has revoked a former decision that certain so-called "black taggers" iron was dutiable at the rates for steel in sheets, having reached the following conclusions upon the questions involved:

Schedule C (T. I., 151) provides that "all iron commercially known as common or black taggers iron, whether put up in boxes or bundles, or not," shall pay a duty of 30 per cent. ad valorem. This paragraph also expressly includes various kinds of plate and sheet iron, and closes with a proviso "that on all such iron and steel sheets or plates aforesaid, excepting, &c., when galvanized or coated with zinc or spelter or other metals, or any alloy of those metals, ¼ cent per pound additional."

"Taggers iron" was first mentioned *eo nomine* in the act of August 30, 1842, but does not seem to have been specially designated in subsequent tariff laws until the passage of the act of June 30, 1864, but during the period intervening between 1846 and 1864 was probably classified for duty under the provision in the various tariff laws for sheet iron, common or black, &c. Since 1864 it has paid duty at the rate of 30 per cent. ad valorem, it being specially enumerated.

The proofs show that during all this period, and down to the passage of this act of March 3, 1883, merchandise having substantially the same qualities, and produced by the same process of manufacture as the articles described in these importations, was commercially known as "taggers iron," or "black taggers," and was classified for duty under the provisions of law above referred to. Such classification continued after the passage of the act of 1883, until in January last, when it was insisted by the revenue officers that this merchandise was not iron or a manufacture of iron, but was steel or a manufacture of steel, and should be classified under paragraph 177, which imposes a duty upon steel bands, hoops, and sheets of all gauges and widths valued at 4 cents a pound or less, at the rate of 45 per cent. ad valorem, and if cold-rolled, &c., ¼ cent per pound in addition, and duty was levied accordingly; and it was in one of these cases that the decision of the Department was made.

It will be perceived from an examination of this decision that among other things it was based upon a report from the appraiser at New York stating "that brands identical with those covered by the entries in question have been invariably classified at that port as steel," &c. This proves to be an incorrect statement of the contents of the report in this respect, as the report merely stated that it was the practice at that port to classify such merchandise as steel, but that it had been invariably so classified at that port was an inference of the Department, and not a fact stated by the appraiser. A further report from the appraiser at New York was called for in these cases, from which it appears that for a period of 20 years or more it has been the invariable practice at that port to classify such merchandise as "taggers iron," and to assess duty accordingly. The same fact is also conclusively established by the papers submitted by the appellants, and the further fact that during all this period it was commercially known as "taggers iron," and bought and sold in the market as such.

Affidavits of the manufacturers are also submitted, from which it is, I think, satisfactorily made to appear that the article is in fact iron or a manufacture of that material, and not steel or a manufacture of steel. The only evidence tending to show that it is a manufacture of steel is the report of the chemists who have made the analyses or tests of the metal, which is to the effect that it is a low grade of steel. Whatever the fact may be in this respect, I cannot doubt, from an examination of paragraph 151 and subsequent paragraphs, that it was the intention of Congress to subject it to duty according to its well-known commercial designation. Such seems to be the express language of paragraph 151, and the proviso also contemplates that some of the articles specified in the paragraph might also possess the properties of steel, for it declares "that on all such iron and steel sheets or plates aforesaid" an additional duty might in certain cases be imposed. So in paragraph 153 "iron or steel sheets or plates, or taggers iron," seemed to be regarded as convertible terms. The said decision, having been made upon an erroneous view of the facts in the case, is hereby revoked, and the claim of the appellants, which is that the merchandise is dutiable at the rate of 30 per cent. ad valorem, under the provisions in said schedule for "all iron commercially known as common or black taggers iron, whether put up in boxes or bundles, or not," is hereby sustained. The collector is instructed to reliquidate the entry accordingly, and to take the necessary steps for the repayment of the duties erroneously exacted.

DUTY ON POLISHED PLATE ZINC.

On an appeal from an assessment of duty at the rate of 45 per cent. on "zinc or tutenag in sheets nickel-plated," claiming that the merchandise is dutiable at 2½ cents per pound, as zinc or tutenag in sheets, or at no more than 35 per cent. at valorem, as plated articles, and returned by the appraiser as a manufacture of zinc, the Secretary of the Treasury says: "From the special report of the appraiser it appears that the merchandise in question consists of sheets of zinc not nickel-plated, which are specially manufactured for printing purposes, and are stamped 'polished plate for transfer or pen work,' that these sheets are cut in the forms and of the sizes to suit the special purposes for which they are designed, and that they are not the 'sheet zinc' of commerce. It also appears that these sheets have the surface of one side deadened by the apparent use of an acid, while the surface of the opposite side has been highly polished by friction. These articles are, therefore, manufactures, and, being of zinc and not otherwise specially enumerated or provided for, are dutiable at the rate assessed."

Among the papers just published by the American Institute of Mining Engineers, is one by Frank C. Roberts, of Philadelphia, on calculations of the available heat and the required dimensions of chimneys, combustion-chambers and gas burners in the use of blast-furnace gases for firing boilers.

Judge Wheeler, in the United States Circuit Court, has rendered a decision in favor of the city in the important suit of Campbell *vs.* the Mayor, &c., of New York. The claim was for the infringement of the patent of James Knibbs for a relief valve for steam fire-engines granted in May, 1864, and the amount involved was upward of $2,500,000. The suit was commenced in 1877. Testimony was taken for four years, and the suit was first heard in 1881 by Judge Wheeler, who held the patent valid and infringed by the city fire-engines, and decided in favor of the complainant. A reference was then ordered to a master to compute the amount due from the city, and this reference has been continued for some years to the present time. The Court has now reversed its former decision, and holds that the patent is invalid, because the invention is proved to have been in public use for more than two years prior to the application.

Employers' Liability in Massachusetts.

Western Massachusetts, if not the entire State, has had for the past week the trial of the first cause under what is known as the Employers' Liability act, passed in 1877, in four cases tried together against the Hudson Iron Company. October 15 last Patrick Myers, Michael Flynn, Michael Kane and John Fallon, all employees of the Hudson Iron Company, while being lowered into the mine in the morning in a bucket commonly used for that purpose, and also for hoisting ore, received injuries which rendered one of the plaintiffs crippled for life, and the others were also badly injured. By some means the hoisting machinery was out of order, and when 50 feet from the top of the shaft it gave way and the four men fell a distance of 125 feet in the bucket to the bottom of the shaft. Myers brought suit for $10,000 and the other three for $5000 each against the Hudson Iron Company, a wealthy corporation, whose furnaces are at Hudson, N. Y., but whose mines are at West Stockbridge, just over the line in Massachusetts. The case was begun before Chief Justice Brigham, of the Superior Court, last week, and was concluded in a disagreement of the jury.

The plaintiffs claimed that under the new Employers' Liability act defendants were guilty of gross carelessness in not providing proper machinery; that it was old and had been frequently broken, and that the brake bar regulating the speed of the bucket going down into the mine had become so weakened that it could not hold a load of four men; that the horns of the friction-clutch operating drum had become beveled, and when they were applied to the rapidly descending bucket did not hold; also that the company did not employ a competent engineer at that time to manipulate the machine; that oil and water had been allowed to accumulate on the drum-head so that the brake would not hold. On the other hand the defendants set up that the men could go either by bucket or a chute in another part of the mine, and that going by bucket was their option, and that they did not exercise due care, and thereby contributed to negligence. Scores of witnesses, many of them expert machinists, were examined, and it appeared in evidence that shovelers, like the plaintiffs, were allowed no discretion, but had to go by the bucket, while the miners went by chutes.

The case has attracted a good deal of attention, especially as the Knights of Labor have furnished money for the prosecution of the company as a test case, while, on the other hand, many manufacturers and others have attended court in order to see what decision would be reached, as it might affect their own mills. Chief-Justice Brigham held that if the defendants had furnished an ordinarily safe machine that they had discharged their duty, especially if the plaintiffs had the option to go by the bucket rather than the chute. The jury deliberated nine hours and stood nine for a verdict and three against. The latter held that there was an option afforded plaintiffs to get to the mine, and that from a personal view of the premises by the jury when the trial began the machine that was capable of raising and lowering 700 pounds of ore was capable of carrying safely four ordinary sized men. Senator Dawes was of counsel for defense. Additional interest now attaches to the case from the fact that no decision has been reached, and that there will now be a delay of new trial before the question can be decided.

THE WEEK.

The directory "booms" of many prosperous and ambitious American cities are under full headway now. The little city of Portland, Ore., shows an increase of 1650 names over last year's directory and ten larger cities make the following gains in the number of names: Milwaukee, 5286; Atlanta, 5809; Denver, 5866; Kansas City, 6373; St. Louis, 6934; Omaha, 8135; Brooklyn, 8256; Baltimore, 9488; Minneapolis, 15,069, and Chicago, 16,675. The most remarkable figures are those from Baltimore and Minneapolis. There will be at least 30 cities in the United States in 1890, instead of 20, as in 1880, which will show a population of more than 100,000, and the number may reach 35

The River and Harbor Bill, appropriating over $22,000,000, the largest amount ever voted by Congress in that direction, now awaits the President's signature. The Conference Committee struck out the item of $500,000 for the purchase of the Portage Lake Canal, Mich., but the items providing for surveys of the Hennepin Canal and the proposed canal between the Illinois River and Lake Michigan are retained on the condition that the Government be not considered committed to either of the schemes.

The sugar trade is badly demoralized by Trust operations and the corner of the raw product produced by their chief antagonist, Claus Spreckles. The whole sale grocers suddenly found their supplies seriously reduced, and the Trust was unprepared to meet the emergency both as to supply of raw material and refining capacity. Not only are refineries from one to two weeks behind in their deliveries, but for the most part they have declined to take orders except to book them at prices to be fixed for them on delivery. As a consequence the jobber has been forced to sell sugar at such a close margin of profit that there scarcely rests any motive for doing business. The jobbers gross profit on assorted grades is about 7 per cent. It costs him 6 per cent. to handle the goods, leaving him 1 per cent. net.

The total exports of petroleum and other mineral oils from the United States for the fiscal year ending June 30, 1888, amounted to 554,901,395 gallons, valued at $45,150,708, compared with 576,094,849 gallons, valued at $45,423,474, for the previous year. This is a decrease of 21,193,454 in gallons and $272,766 in value. The following ports, which ship about 99 per cent. of the total exports, shipped amounts during the past two years as follows:

	1888. Gallons.	1887. Gallons.
New York	394,180,131	400,488,533
Philadelphia	146,671,617	156,519,944
Baltimore	8,684,648	12,428,145
Boston	5,364,999	6,658,227
Total	554,901,395	576,094,849

Of the $8,000,000 invested in the pottery industry in this country $4,000,000 is centered in Trenton, N. J. There are 26 potteries there. They give employment to about 5000 persons, who receive weekly in wages about $50,000 when the potteries are running. A fine earthenware dinner set, decorated with flowers, gold edge, and so forth, can be purchased now from the American potteries for $25. The same thing would have cost from an English pottery before 1878 $45.

The subject of Australian trade is receiving special attention on the Pacific Coast on account of the Melbourne International Exhibition, as the Californians are anxious to secure the largest share possible. A San Francisco paper, looking at the statistics of the trade with the United States during the last two years, says: They show that our imports from the colonies increased to the extent of $1,500,000 within a year, while our exports to the colonies decreased to about the same extent. The figures are as follows, and are for the fiscal year ending June 30:

Year.	Imports.	Exports.
1886	$3,859,360	$11,134,301
1887	4,411,119	9,668,435

This shows a considerable loss in our export trade, which is pretty evenly divided in proportion to its extent between Pacific Coast and Eastern points, thus:

	Exports. 1886.	1887.
Pacific Coast	$2,150,046	$1,731,675
Eastern points	8,984,255	7,936,760
Total	$11,134,301	$9,668,435

In the matter of imports, however, the Pacific Coast shows an increase of $814,000 in the course of a year, while in the East the imports decreased to the extent of $262,000 in the same year.

Dr. H. N. Allen, secretary of the Corean Legation to the United States, speaks of the growing intimacy between the two countries, whose relations are closer than those with any other. He is now in New York arranging direct telegraphic communication. California will probably be granted concessions to work the gold mines, which are believed to be very rich. American officers are reorganizing the Corean army and will introduce American weapons. A contract has been made with a firm in the United States for the exportation of 50,000 tons of rice.

Oscar S. Straus, United States Minister to Constantinople, who is about to return on a temporary leave of absence, reports that the relations existing between the two countries are of the most friendly character.

Wealthy Chinamen are obtaining subscriptions for a Chinese Exchange to be erected in Mott street, New York City, to be the headquarters for all Chinamen east of the Rocky Mountains.

There is now on the stocks at Waldoboro, Me., one of the most remarkable vessels ever built in the United States—a five-masted center-board schooner, which will be the largest vessel of its kind afloat. Her length of keel is 225 feet, her breadth is 50 feet, depth of hold, 21 feet, and her measurement will be 1800 tons. Her masts will be of Oregon pine, and her foremast, mainmast, mizzenmast, spankermast and jigger will be each 115 feet in length. There will be used in her construction 450 tons of white oak from Virginia, 800,000 feet of hard pine from Georgia, and 175 to 200 tons of iron. Her outboard planking will be 6 inches thick from keel to top, and her inside ceiling will be from 10 to 14 inches in thickness. She will have two full decks running the entire length of the vessel and nine hatches. She will be launched in October. She will be employed in the coal trade.

The work of regilding the copper dome of the State House, in Boston, has been commenced and will be completed in six weeks. It was originally gilded about 14 years ago. The dome is 35 feet high and 53 feet in diameter. The whole is enclosed in a cage of lumber, to serve as a framework for a canvas covering, for the protection of the gilders. The copper surface will be polished to the smoothness of glass, and then given a coating of size, over which will be a layer of yellow paint. The sizing will be composed of the best varnish, turpentine and the oldest pure linseed oil, and when this has partially set the surface is ready for the gilders. Two hundred and forty packs of 23-carat gold-leaf will be required. Each book is worth $4.70.

Col. Longendycke has been in the cattle business in Kansas and the Southwest for many years, and he believes that the days of the ranchmen in this country are numbered. He further believes that South America offers a fine field for the cattle industry, and that from the grassy plains of Brazil and the Argentine Republic must come the cheap beef of the future. With that in view he has formed an association who propose to secure a large tract of grazing lands in the Amazon Valley and export beef from Brazil for consumption in the United States.

One of the principal iron steamship builders in Philadelphia has in course of construction nine steamships, including those contracted for by the Government.

The Senate confirmed the nomination of Melville W. Fuller to be Chief Justice of the United States Supreme Court, by a vote of 41 to 20.

The population of California at the present time is officially stated to be over 1,500,000, almost doubling that of 1880.

Nearly 1000 houses in Port-au-Prince were destroyed by an incendiary fire which broke out in the Senate Building, July 4. On account of fears of a rebellion of the political factions valuable merchandise has been placed in fire-proof buildings so far as practicable. The best part of the city is in ashes.

The population of Washington city is 218,000, including 72,500 colored.

Orange culture in Louisiana is making good progress. A single parish this year will yield oranges to the value of $170,000, or almost as much as the entire State eight years ago.

An appalling cloud-burst last Thursday in Western Virginia swept bare 100 square miles of agricultural country and at Wheeling several lives were lost. Nine railroad bridges and 25 wagon bridges are gone in Ohio County alone, and a low estimate puts the loss $350,000. In Belmont County, Ohio, the loss will aggregate $100,000.

The Pithole farm in the Pennsylvania oil regions once sold for $1,500,000, but for 20 years has produced nothing. A few days ago, however, wells there began to yield 150 barrels a day and once more territory lately regarded as worthless is in demand.

The Cuban sugar crop promises a large yield.

The Industrial Home and School of St. Francis de Sales, near Bristol, Pa., founded by the daughters of the late Francis A. Drexel, was opened last week with 200 boys. The value of the property is $200,000, and the generous founders have provided for the current expenses of the institution. Manual training will be its great feature.

Representatives of three-fourths of all the nut and bolt manufactories in the United States met at the Fifth Avenue Hotel last week and arranged the preliminaries for an association of all the manufacturers in this country to maintain prices and prevent disastrous competition and overproduction. Eighteen persons were present, representing over 30 of the 45 factories now in operation. It was determined that an organization of the character proposed should be effected if a sufficient number of those not represented in the meeting would co-operate to give the association the necessary strength. A committee was appointed to draft the form of an agreement for the signature of the members at the next meeting. By the agreement

special discounts are to be given to dealers handling exclusively the goods of the association factories, and all the members of the association bind themselves by strict penalties not to sell their goods below the association schedule. The product of the nut and bolt manufactories of the United States amounts annually to several million dollars. It has of late years increased beyond the legitimate demands of the trade. Competition in price has naturally diminished the profits of the contending manufacturers, hence this organization.

The contract labor law is practically a nullity. So far as it has any efficacy skilled labor is excluded, while the padrone and his counterparts of various nationalities meet with little impediment. The immigrant who comes with some definite knowledge of what he is to do to earn a living, and with some assurance of employment, is the most welcome, certainly, and yet it is against him that this law necessarily operates. Chairman Melbourne H. Ford of the Congressional Committee to investigate the violation of the laws bearing on immigration is taking testimony, and will in all probability occupy two or three weeks at the least in this city.

The Connellsville coke operators have shipped 3000 tons of coke to Newfoundland and expect to show that it is superior to the English product.

The Board of Water Commissioners of the village of Sing Sing awarded the following contracts for the construction of the new waterworks there: Gloucester Iron Company, Philadelphia, pipe and special castings, $38,261; R. D. Wood & Co., Philadelphia, hydrants and valves, $4244, and other contracts for reservoirs, &c., amounting to $113,344. The sum of $150,000 has been appropriated, and the contract for the pump, engine and boiler is yet to be given out.

Five ships are on their way to Tacoma, W. T., from Japan, with 12,000,000 pounds of tea, to be shipped East over the Northern Pacific Railroad. The first of the fleet has already arrived and the American company doubtless feels that it has scored a good point against the Canadian Pacific.

Traffic on the Erie Canal is the lightest experienced in July for three years. The loss is principally in the transportation of grain and lumber. Freight rates, too, are extremely low, while last year vessels were profitably employed the entire season.

The State Forest Commission last week summarily disposed of the 200 "custodians" that it received as a legacy from the Land Commission when the Forest Commissioners were appointed about two years ago. At the meeting of the board in this city, President Sherman W. Knerals presiding, the decision was to the effect that these custodians had never been legally appointed, and all their supposed rights were revoked. Unless the custodians contest their removal in the courts, some 200 cottages and villas in the Adirrondack and Catskill Mountains will revert to the State, and their owners will have to find other sequestered nooks upon land not belonging to all the people in general and no one in particular.

The machinery of the great silk mill of the Phœnix Mfg. Company, in Pottsville, Pa., was started last week. The mill has been one year in construction, and is said to be the most extensive and completely equipped establishment of the kind in the country.

Naval officials are very much pleased over the successful casting of the stern post of the cruiser Charleston at the Pacific Rolling Mills, which is shown to have been an exceptionally fine, extra smooth, sound casting of open-hearth steel. The weight of the charge placed in the furnace was 27,295 pounds of metal, and the dressed casting weighed 11,510 pounds. Test pieces taken from this casting gave an elastic limit of 33,742 pounds per square inch, a tensile strength of 63,112 pounds per square inch, 18 per cent. elongation in 8 inches and 20 per cent. reduction of area. Bending test pieces were bent cold over radii varying from $\frac{7}{8}$ inch to $1\frac{1}{4}$ inches through angles varying from 218° to 234° without fracture.

A statement, prepared at the Patent office, shows that during the six months ended June 30, there were 18,685 applications for patents and 1298 caveats filled. During the same time 10,855 patents and reissues were granted. The receipts of the office were $568,091. In each of these items there is an increase over the same months of last year.

The Erie Railroad have adopted the same system as that in use by the Pennsylvania at their Jersey City terminus for protection against fire. They have 28 boxes in all, located at important points and covering all places controlled by them. A land force and fire-tug force have been established, with full instructions how to act in case of fire, each force having a chief and assistant chief.

The Detroit city hall was badly wrecked a few days ago by an explosion, which investigation proves to have been caused by a leakage of gas.

The report of the Secretary of the Prison Reform Association shows that the proportion of prisoners to the total population of the country has increased rapidly. In 1850 the census showed a percentage of 0.29, but in 1860 of 0.607. The percentage of foreign-born prisoners as compared with that of natives is now a little less than double. In 1850 it was more than five times that of native prisoners. In other words, the increase of crime has been greater among the native population than the foreign. Foreign disregard for law shows itself far more in immorality and disorder than it does in dishonesty or violence.

The Russian Consul at Nagasaki calls attention to the excellent opportunities for the introduction of Russian oil into Japan. He asserts that Russian kerosene is both cheaper and better than the American, and ascribes it to the want of enterprise of Russian merchants that this important article has not been widely spread all through Japan.

Another steel bridge will be built across the Allegheny River in Pittsburgh, for the electric lines of cars. The capital to be invested is $500,000.

The Eclipse Mfg. Company.

The new works occupied by the Eclipse Mfg. Company in the manufacture of steam and hot-water radiators are located in the southwestern part of Chicago, on Twenty-second street, near Western avenue. These works were built by the company with a special view to their purposes, and form a very compact and well-arranged plant. One building, 60 x 256 feet, built of brick, shelters the whole working force. The front, to a depth of 130 feet, is occupied by the machine shop, with a portion at one side partitioned off for a shipping room and a small space in a corner on the other side for an office. In the rear of the machine shop is a room for cleaning castings, which extends the full width of the building. The foundry, 60 x 125 feet, occupies the remaining space and is open to the roof. The machine shop has a basement under it and the pattern shop overhead in a second story. The building is constructed of brick and is supplied with numerous windows, the foundry being particularly well lighted from the sides and from windows in the ventilator, which extends along the comb of the roof.

As the output of the foundry consists of radiator loops and other hollow castings, an unusual number of core-makers is employed for the quantity of work performed. Over one-fourth of the 45 hands employed in this department are core-makers. The capacity of the foundry is now 400 to 500 radiator loops per day, with one 10-ton cupola. The metal is tapped from the cupola directly into casting ladles, which are carried at once to the flasks, in order to keep it as hot and liquid as possible. The melting of metal and heating of cores are done exclusively with coke.

The machine shop is equipped with lathes and with special tools for finishing and connecting the loops. After the loops are cast and cleaned the first process is to test them with water to see that they are free from holes. They are then taken to a machine and tapped. A special machine faces the upper ends of the hot-water loops, another dresses the ends to go together, another cuts the nipples, &c. A very interesting machine is used to screw the loops together, which it does more perfectly and economically than could be done by any hand process. These special machines were all built by the company except a very few, which were built elsewhere for lack of time. After the loops have been joined they are tested with water-pressure at 65 pounds to the square inch, and with steam from the boiler furnishing power to the engine, which ranges from 60 to 70 pounds. The radiators are shipped in the rough to their destination, the painting and decorating being done to best advantage after they are set in position to be used. In the machine shop and other departments outside of the foundry about 50 men are regularly employed.

The products of the company, in addition to steam and hot-water radiators, are steam traps, back-pressure valves, purifying valves for purifying water going into boilers, rocking-grate bars, and pressure regulators or reducing valves. The Eclipse back-pressure valve is an automatic device placed on the exhaust-pipe of a steam engine, so that the exhaust steam, which would otherwise be wasted, may be utilized for heating the building, &c., and the valve is so constructed that any surplus quantity of exhaust steam passes off through it into the atmosphere without noise and without the rapid wear usual to such devices. The Eclipse pressure regulator is adapted for use in heating apparatus or manufacturing when a constant, unvarying pressure below 10 pounds is required, notwithstanding the variations above this pressure that may take place in the boiler. New and improved forms of radiators are also being made by the company, embodying ornamental designs and securing greater efficiency.

The location of the works is excellent for gathering together materials, shipping goods, and expanding when greater facilities are required. A siding runs into the yard from the Chicago, Burlington and Quincy Railroad. A number of adjoining vacant lots are owned by the company, and additional buildings are contemplated, as orders are at present in excess of their capacity. A second cupola has already been decided upon, as ample room was left for it in the construction of the foundry. Gas for illuminating purposes is manufactured on the ground from gasoline, which is found to be economical and wholly satisfactory in every respect. The city office of the company is located in the Rookery Building, room 418, in which specimens of their products are exhibited.

MANUFACTURING.

Iron and Steel.

We are informed that the report that the Standard Iron Company, of Bridgeport, Ohio, whose works have been idle for some time, would sign the scale and resume operations on the 23d inst., is without foundation. The company have not as yet decided when they will resume operations again.

The Reeves Iron Company, of Canal Dover, Ohio, are constructing a regenerative gas furnace, with the necessary gas producers, from plans furnished by Alex. Laughlin & Co., engineers, of Cleveland, Ohio, and upon its completion intend erecting another furnace immediately, for their 8-inch mill.

The plant of the Warren Tube Company, at Warren, Ohio, is advertised to be sold by the Sheriff on the 14th of August next. The appraised value of the plant is $115,000.

The Sharon Iron Company, of Sharon, Pa., signed the Amalgamated scale last week and their plant has resumed operations in all departments.

Negotiations are pending with persons who desire to lease the new charcoal furnace of the Decatur Land, Improvement and Furnace Company, at Decatur, Ala., which is now nearly finished.

J. W. Walker, proprietor of the Shiffler Bridge Works, at Pittsburgh, Pa., reports a large amount of business on hand at present. In the matter of mill buildings and steel plants, he is now engaged on a contract with H. Disston & Sons, the well-known saw manufacturers, of Philadelphia, to replace the buildings of that firm recently burned, which cover over 60,000 square feet of ground. He is also erecting, for the Allegheny Bessemer Steel Company, at Duquesne, Pa., a main building constructed entirely of wrought iron and covering about 40,000 square feet, and an iron building to be used as a cast-house for the Attala Furnace Company, of Attala, and several other smaller structures. In addition to these Mr. Walker has a large amount of bridge work for various railroads throughout the country, among which may be named Baltimore and Ohio, Pennsylvania Railroad and Pennsylvania Company's lines West of Pittsburgh, East Tennessee, Virginia and Georgia, Kanawha and Ohio, Chattanooga, Rome and Columbus, Oxford and Clarksville railroads.

A special dispatch from Warren, Ohio, under date of the 20th inst., reads as follows: "In 1883, when James Ward failed in the iron business at Niles, he owed his men $15,000, and it was not thought possible that more than 50 per cent. of this could ever be paid. John M. Stull, of this city, was made assignee, and, by judicious handling of the property, he has been able to pay the debt in full, the men receiving the last dollar due them to-day."

The Catoctin coke furnace was expected to be blown in about July 23. The property will be under the control of Thomas Gorsuch, as agent, until the new company are organized and a charter obtained.

The Bellaire Nail Works, of Bellaire, Ohio, are making some extensive additions to their plant. The steel department will be almost reconstructed throughout, and will not be ready to resume operations for several weeks yet. Among other improvements two new switches are being laid, making eight in all, which will be covered by a building 310 x 150 feet, covering over 1 acre under roof, and accommodating 32 cars at once. The necessity for this extensive dumping ground will be realized when it is known that 18 cars of ore and 16 cars of coke are unloaded at the works every day. The blast furnace of this company is still doing remarkable work. For the six months ending on June 30 its output was 26,540 tons.

Charles Huston & Sons, proprietors of the Lukens Rolling Mills, at Coatesville, Pa., have just put in a new set of three-high rolls, 98 x 30, in place of 84 x 25, as heretofore. They also put a new cylinder of increased size, with Corliss valve-gear, to their engine, which was formerly of the slide-valve pattern. All the work is now complete and running satisfactorily. Orders are reported plenty.

Col. James Collord, of Collord & McKee, pig-iron brokers, of Pittsburgh, and John J. Spearman, of Sharon, Pa., have leased the Sharon furnace of Boyce, Rawle & Co. at that place, and will put it in first-class repair, with the intention of early resumption. They have an option on the purchase of the plant at a reasonable figure. The furnace has been idle nearly a year.

The rail-mill department of the Cleveland Rolling Mill Company, of Cleveland, Ohio, is running double time at present.

The rolling mills of the Oxford Iron Company, at Belvidere, N. J., resumed operations on Thursday. Harmony exists between employers and employees. The works have been closed for several weeks.

D. W. C. Carroll & Co., Limited, of the Fort Pitt Boiler Works, Pittsburgh, have just received an order for four 35,000-barrel oil tanks, six 600-barrel oil stills and three large tubular steel boilers, complete, all to be completed in 120 days.

The two Cedar Point furnaces of the Baltimore Iron Company, at Baltimore, Md., have been dismantled. The wharf property has been sold to the Philadelphia, Wilmington and Baltimore Railroad Company.

P. L. Kimberly & Co., Limited, of Sharon, Pa., signed the Amalgamated scale for the Atlantic Iron and Nail Works, at that place, and these works resumed operations in full in all but the nail department on Monday, the 23d inst. The plant has been idle since March last. Keel Ridge Furnace, also at the above-named place, and operated by this firm, will be put in blast at an early date. It has been idle since the first of the year.

About 300 employees of the Lake Erie Iron Company, of Cleveland, Ohio, have stopped work owing to the establishment of the monthly pay system. The men were employed in the nut and bolt department and but recently received notice of the monthly pay system. They were invited to sign an agreement to that effect, but refused and struck. It is thought that the trouble will be satisfactorily arranged in a few days.

The Ivanhoe Furnace, in Wythe County, Va., is expected to be ready to blow in with coke as fuel about October, 1888. It is being remodeled for this purpose, having heretofore been a charcoal stack.

The regular monthly meeting of the Western Wire Nail Association, which is composed of the wire nail manufacturers west of the mountains, was held in the Monongahela House, Pittsburgh, on Friday, the 20th inst. C. B. Beach, of Cleveland, is president, and R. H. Johnson, of New York City, officiated as secretary. The following named firms were represented in person: Pittsburgh Wire Nail Company, Pittsburgh, Pa.; Hartman Steel Company, Limited, Pittsburgh, Pa.; New Castle Wire Nail Company, New Castle, Pa.; Phillips, Townsend & Co., Philadelphia, Pa.; Salem Wire Nail Company, Salem, Ohio; H. P. Nail Company, Cleveland, Ohio; American Wire Nail Company, Covington, Ky.; Cincinnati Wire Nail Company, Cincinnati, Ohio; Wetherald Wire Nail Company, FIndlay, Ohio. The St. Louis Wire Nail Company, of St. Louis, were represented by proxy. Nothing but the usual routine business was transacted. The members present reported the trade to be in a fairly satisfactory condition. The next meeting of the association will be held in Cincinnati about August 20 next.

The annual meeting of the stockholders of the Catasauqua Mfg. Company, of Catasauqua, Pa., was held in the office of the company, on Wednesday, the 18th inst. In consequence of the unprofitable character of the iron business for the past six months, and the unsatisfactory outlook for the future, the semi-annual dividend was passed, for the first time in many years.

The Chandler mine, 25 miles east of Tower, on the main range of the Vermillion district, Minnesota, will commence shipping iron ore on the 1st of August, and will forward 600 tons a day of high grade Bessemer. This mine is expected to be a heavy producer and to rank among the big mines of the country. Joseph Sellwood is superintendent of mining operations.

The Iron Mountain Company, of St. Louis, are rapidly opening up the "new find" of iron ore at their Iron Mountain mines in Missouri, notwithstanding the dull market. Prof. W. B. Potter, who has charge of their operations as consulting engineer, is entitled to the credit of this discovery, which resulted from explorations made on his advice and in a direction indicated to him by a thorough study of the geological formation. A very large deposit of a most excellent quality of high grade Bessemer ore has been opened up, which will again bring this company to the front as heavy producers of ore. Faces of ore from 30 to 50 feet thick have already been exposed in the underground workings.

The foundations for the hot-blast stoves, furnace stack and draft stack of the blast furnace at West Duluth, Minn., are about completed, and the brick masonry of the casting house is well under way by this time. The builders expect to begin placing the columns for the furnace stack about the 1st of August. The size of the furnace will be 75 feet by 16 feet. At West Superior, Wis., across the bay from West Duluth, the proposed pipe foundry has been laid out and the erection of the walls has been put under contract. The initial capacity of this foundry will be 50 tons per day.

The Cherokee Land and Iron Company, of Cherokee County, Texas, have proceeded so far in their plans for developing their iron ore deposit as to authorize John Birkinbine, engineer, of Philadelphia, to prepare plans for a 50-ton charcoal furnace. With the sole exception of the State furnace, three miles distant, this will be the only blast furnace in a radius of 500 miles from the site selected. The furnace will be operated on foundry iron.

The Calumet Furnace, operated by the Chicago Furnace Company, and situated at Cummings, near Chicago, was blown out last week for repairs. This furnace ran a year and ten months on a lining which was merely patched when the present blast was started. It was the third blast on one lining, although both the previous blasts were rather short. The hot-blast stoves will be overhauled while the lining is being renewed, and the furnace will probably start up again in 60 days. Charles Himrod & Co., sales agents, state that a sufficient stock of pig iron is on hand to supply the wants of customers in the interval. While the Calumet Furnace

was being blown out, the Minerva Furnace, at Milwaukee, Wis., operated by the Milwaukee Furnace Company, consisting of substantially the same stockholders, was being blown in, after thorough repairs. The Minerva Furnace will run on a Bessemer contract for the remainder of the year, to supply a local steel company.

In May the first Ensley furnace of the Tennessee Coal, Iron and Railroad Company made 4548 gross tons of pig iron, an average of 1027 tons a week, figures which certainly go far beyond anything yet done in the South. The second Ensley furnace was blown in on the 2d inst.

Some changes have taken place in the management of the Norton Iron Works, of Ashland, Ky. D. B. Meacham, formerly secretary, has been elected vice-president and general manager, and J. K. Pollock has become secretary.

A contract was signed with the Chester Rolling Mill Company at Thurlow, Pa., on the 23d inst. for the construction of a new Bessemer steel plant and blooming mill, with a weekly output capacity of from 2000 to 2500 tons. The new steel mill will be completed early next spring and will employ a large force of men.

Contracts have been made for the cabling of the West Madison street railway in Chicago. The tunnel under the Chicago River at Washington street will be used to secure an uninterrupted connection with the business center of the city. About 2500 tons of cast iron will be used for the yokes and pulleys, and 1500 tons of tank steel for the conduit in which the cable will operate.

Machinery.

William Shimer & Co., engineers and machinists, of Freemansburg, Pa., have commenced the erection of a new foundry, 75 x 100 feet, which they hope to have finished by August 1st next. It will increase their capacity about 50 per cent.

The new car shops of the New York and New England road at East Hartford, Conn., which have cost $250,000, will be ready in 30 days The plant includes 30 acres and has accommodations for 1300 cars.

The Excelsior Iron works, 160 North Clinton street, Chicago, Ill, have secured a contract from the city of Chicago for 15 steel boilers for the new water works. These are to be tubular boilers, each 62 inches in diameter and 20 feet long, and containing 49 4-inch tubes. W. S. Mallory & Co. will supply Park Bro. & Co.'s steel for this work.

The Whitin Machine Company, of Whitinsville, Mass., will light their large factories with 170 Waterhouse arc lights, to be supplied by the Waterhouse Electric and Mfg. Company, of Hartford, Conn.

At the Ohio Valley Centennial Exhibition, now open at Cincinnati, the John H. McGowan Company, of that city, exhibit pumps of their make run by air pumped by their Rival air pump into a receiver, from which connection is made, the pumps referred to running the same as if operated by steam. They have also a direct-acting steam pump for use in connection with hydraulic machinery for tobacco manufacturers, which is something new in that line. Eight of the Machinery Hall boilers are being fed by means of their Rival boiler feeder, having been used for that purpose since expositions were first held in Cincinnati. One of their Monitor Rivals feeds the 500 horse-power Heine safety boiler which is supplying power to the hall.

Messrs. Lodge, Davis & Co., of Cincinnati, Ohio, are running full on orders, having just secured a large contract from Messrs. Lloyd, Booth & Co., of Youngstown, Ohio, for some heavy machine tools. They have also an order for an entire machine-shop outfit for the Wm. Anson Mower and Reaper Company, of Youngstown, who propose moving their entire plant to Chattanooga, Tenn.

During the months of May and June of this year the Babcock & Wilcox Company, of New York, sold boilers amounting in all to 8354 horse-power.

Miscellaneous.

Operations are about to be resumed at some of the iron-ore mines along the East Pennsylvania Railroad between this city and Allentown. Work had been suspended on account of the depressed condition of the iron trade, and the miners found employment among the farmers at haymaking and harvesting at $1.25 per day. They now return to the mines at 80 cents per day for surface work and 90 cents for underground work. — *Reading (Pa.) Times.*

From the Marquette (Mich.) *Mining Journal* of the 14th inst. we take the following: The season's shipments of ore from the Lake Superior mines now amount to 1,350,369 gross tons, this being 192,980 tons behind the shipments at the corresponding date last year. The shipments for the week ending Wednesday were 155,947 tons, of which amount 32,892 tons went from Marquette, 2020 tons from St. Ignace, 51,854 tons from Escanaba, 48,553 tons from Ashland and 20,628 tons from Two Harbors. The shipments of this week show a slight falling off from those of the previous week, the shrinkage being almost wholly in the quantity sent from Escanaba. The following table shows the shipments by ports for the present season to date, and for the corresponding periods in 1887 and 1886:

	1888.	1887.	1886.
Marquette.....	175,089	290,273	344,246
St. Ignace.....	46,709	34,580	21,778
Escanaba.....	722,407	775,433	534,168
Ashland, Wis..	303,096	353,695	215,795
Two Harbors..	98,068	109,368	99,773
Total.....	1,350,369	1,543,349	1,265,760

The J. M. Schoonmaker Coke Company, of Pittsburgh, have secured an order for 2000 tons of coke, to be shipped to Newfoundland via Perth Amboy, N. J. Some time ago the firm shipped 1000 tons as an experiment. It proved so successful and the coke was so much better than the English product that founderies there ordered more. This opens up a new market for Connellsville coke, which gives promise of developing into a healthy demand. The cost of transporting it from the Connellsville region to Newfoundland is about $5 per ton.

Messrs. Bornholz & Co., 232–234 Front street, New York, have issued a circular letter in which they announce that they are prepared to buy up all kinds of old metals in any shape, with the exception of iron and steel, specifying more particularly dirt and scraps of tin, solder, lead, spelter, type, &c.; scraps, turnings, filings of copper composition, brass, zinc, &c. To those who have on hand waste material of this kind it may be of interest to submit samples to Messrs. Bornholz & Co.

The Bridgeport Crucible Company, of Bridgeport, Conn., manufacturers of black-lead crucibles and plumbago, report an active business. The company are now under the management of Mr. W. T. Macfarlane, who is well known to the trade, having been formerly connected with the Taunton Crucible Company, of Taunton, Mass.

The Chalmers-Spence Company of New York, whose asbestos goods, more particularly their removable pipe and boiler coverings, are well known throughout the United States, removed their Philadelphia office July 16 from 32–34 South Second street to 24 Strawberry street.

The Aluminium Brass and Bronze Company, of Waterbury, have decided to locate their works in Bridgeport, Conn. At present the company are receiving bids and estimates on buildings, machinery, &c.

The Phœnix Iron Company.

A very pleasant visit was made on Thursday last to the works of the Phœnix Iron Company, at Phœnixville, Pa. About 20 gentlemen made up the party, which was taken in charge by Mr. G. Gerry White, secretary of the company. The party from Philadelphia included Mr. F. Dundore, J. Meeley, C. S. Tyson, G. M. Newhall, G. A. Carson and the Philadelphia representative of *The Iron Age* and Mr. B. Archer, of Camden, N. J. Connected with the new sugar refinery being built by Mr. Claus Spreckles were Mr. A. B. Rorke, the contractor for the building, and Messrs. Watson and Mueller, engineers, besides several other gentlemen. Two special cars carried the party from Ninth and Green street, Philadelphia, directly to the works, at which point they were taken in charge by Mr. David Reeves, president of the company, and Messrs. W. H. Reeves, Amory Coffin and A. Bonzano, who are in charge of various departments of the Phœnix Iron Company's works. The first visit was to the rolling mills, which are 930 feet in length, with 430 front, one of the largest and best equipped mills in the country. The mills were at work rolling steel shapes for the Government cruisers now being built by the Cramps for the U. S. Government, as well as on various other work, including some for the Spreckles refinery. The next building visited was the erecting shops of the bridge works, in which were seen vast quantities of material for shipment to various parts of the country, one portion of upward of 6000 tons being for the new bridge over the Ohio at Cincinnati. The party were next taken to the drafting rooms, in which 40 to 50 draftsmen were at work getting out plans for other work expected to be taken later on in the season. Models of a very interesting character were also shown, explanatory of the various modes of constructing and securing these immense bridges in position, which were of special interest to the engineers. The three blast furnaces were also visited, as well as the blooming mill and new open-hearth plant, which is now being constructed for the company, and which is to be completed at an early date. The establishment, employing about 2000 hands all told, proved to be altogether beyond what could be gone over in a half day's visit, so that a mere glance was about all that could be given to many interesting features. After leaving the works the party were taken to the residence of Mr. David Reeves and were handsomely entertained, returning to the city about 9 p. m., the entire party feeling that they had not only spent a most enjoyable day, but had received enlarged ideas in regard to the magnitude and importance of Pennsylvania's leading industry.

The Calumet and Hecla copper mine has been so far exhausted of water introduced to extinguish the fire that rock from the old workings will once more be hoisted out by the close of this week.

A large deposit of red hematite ore suitable for the manufacture of paint has been found near Monroe, Jasper County, Iowa, and a company is being formed to mine it for that purpose. It is reported to be 20 feet thick and to cover an extent of 200 acres.

The Iron Age

New York, Thursday, July 26, 1888.

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Dissolution of an Iron Manufacturers' Association.

For several years the iron manufacturers of Pittsburgh and points further west have maintained an organization known as the Association of Manufacturers of Iron, Steel and Nails. Its principal object was to unite the manufacturers of that part of the country in support of a common policy on the labor question, to meet the issues presented by their workmen, organized as the Amalgamated Association of Iron and Steel Workers. Committees of conference from these two bodies have met annually to discuss rates of wages, and if no cause of disagreement arose they would adopt a scale which was binding on both parties for 12 months from the 1st of July. This year, it is almost unnecessary to say, there was a disagreement, the manufacturers desiring a reduction of the scale on account of the low price at which they were obliged to sell their products, while the workingmen insisted on preserving the old rates. The officers of the manufacturers' association and many of the firms composing the membership positively asserted that the reduction of the scale was asked in good faith, and that their rolling mills were prepared to lie idle for months if this concession was not made by the workingmen or if trade did not improve sufficiently to make the old scale equitable. On the first Monday in July a general shut-down of the Western rolling mills was made and the struggle began. The signing of the scale by several firms during the first week was conclusive evidence that the manufacturers were not presenting a united front, but the officers of their association stated that they expected these deflections for special reasons. More followed in the second week, and their action was also explained on special grounds, but by the beginning of the third week it became plainly apparent that only a portion of the manufacturers would be left to continue the contest. They did not propose to keep their mills standing idle, however, and see their trade falling into the hands of competitors, and on the 18th inst. the Conference Committee of the association met at Pittsburgh and concluded to dissolve, releasing the members from all pledges regarding the starting of their works. This is accepted generally as a dissolution of the organization, and some of the manufacturers of Ohio are already discussing the formation of a new association to look after their local interests.

For several reasons, which it it unnecessary now to discuss, this is a bad year for labor contests, if they can be avoided. A number of the manufacturers must have been of this opinion, or the disintegration of their forces would not have been so rapid, and would not have included so many prominent establishments among those which first yielded. There are some, however, who sincerely believed that the trade conditions required a lowering of the wages scale, and who earnestly desired a contest to be fought out on this line if their mills had to lie idle for months. They are inclined to take a gloomy view of the collapse of the manufacturers' strength and look forward with apprehension to the future. The lower wages paid in the East are alleged to give the mills of that section an advantage in markets which are claimed to belong naturally to Western manufacturers. At all events the Eastern mills will be better able to hold their own against Western competition now that Western wages are to be maintained at the old level. If serious results to Western manufacturers follow the action which has thus been forced upon them by some of their number, a bitterness of feeling will be created far surpassing the chagrin now manifested by those who were in favor of heroic measures. The dissolution of the Manufacturers' Association is the first important event indicating ill feeling.

This disruption of an association which had existed for years is variously regarded. The leading members of the Amalgamated Association are reported to deplore it, because they preferred to treat with a committee representing all the mill-owners rather than with each manufacturer separately. Some of the principal iron companies also regret the occurrence very much, as they fear that the strength of the labor organization will be increased in the proportion in which the manufacturers have divided their power. There are others, however, and they are by no means few, who regard the whole matter with indifference, alleging that the association merely existed for the transaction of business which each member was perfectly able to take care of himself, and that it will be found in time that no harm has been done to anybody by the abandonment of a conference committee which only nominally represented the mills. Its importance was largely fictitious, owing to the great changes which have of late years taken place in the Western iron trade, and through which the interests of manufacturers do not lie so much in common as was once the case. Many mills now devote their attention to specialties, instead of making finished iron and steel for the general market, and only in the primary processes of manufacture do they find themselves in line with their neighbors. Sufficient uniformity may exist to make a general scale of wages applicable, but, as to times and seasons of dullness and brisk trade, special considerations enter which will prevent a simultaneous shut-down, unless it is agreed upon long in advance, and every manufacturer then makes his preparations for it in good faith. Evidently this was not done in anticipation of the lockout of July, 1888.

The announcement that a delegation of American glassworkers sailed for Europe on the 21st inst., to endeavor to "organize" the Transatlantic glassworkers, recalls the effort made from 1870 to 1872 by American ironworkers to induce their English co-laborers to demand better wages. The details of the scheme were not made public, but labor agitators were quietly sent from this side to show English workingmen how much more they ought to receive for their labor than they were being paid, citing the rates of wages ruling on this side of the ocean as evidences of what men were entitled to in their occupations. The result of the mission was beneficial to some extent, as wages were raised at numerous works in compliance with the demands made, but a depression in trade soon after came on, and the advance was lost in spite of very extensive and protracted strikes, in which the supply of labor was shown to be hopelessly in excess of the places to be filled. The professional labor agitator will find abroad a good field to work in, and he will be entitled to genuine praise if he can not only succeed in elevating labor, but can also permanently sustain it on a higher level.

Important Acts of the Legislature.

The New York Legislature met on Tuesday, 17th inst., in extraordinary session, the special object being to provide for the employment of convicts in the State prisons, and its proceedings lasted four days. Messages upon other topics were received from the Governor from day to day, but none excepting those relating to labor and the Aqueduct were acted upon. Senator Fassett, Chairman of the Aqueduct Investigating Committee, was gratified in the passage of a bill by a decided vote, abolishing the present Aqueduct Commission and substituting a board composed of Mayor Hewitt, Controller Myers, Commissioner Newton, of the Department of Public Works, and four citizens, two Republicans and two Democrats, to be appointed by Mayor Hewitt. Moreover the act gives the Mayor of New York and the Governor authority to remove on charges the Aqueduct Commissioners—a power, it is said, which they do not now possess. The Governor has already approved the bill. Mayor Hewitt pronounces it a step in the right direction, and says he will appoint as commissioners four of the most independent men he can find, who will outvote him every time he is wrong.

No small share of interest was concentrated on the prison labor question. The measure adopted is known as the Yates bill, which was defeated in the regular session. It provides the sum of $250,000 and abolishes the State account system. It declares that none of the goods made in the penal institutions of the State shall be sold except to the State charitable institutions. The convicts henceforth shall do no labor except hand labor, the use of machinery in the prisons being forbidden. It is to be deprecated that a measure so radical could not have had more deliberate consideration than was possible at a special session, especially as it is so much entangled with the labor question as represented by trades unions in prospect of the pending election. A recommendation of the Governor concerning a modification of the conspiracy laws, and which originated with the Central Labor Union, was allowed to slumber until some future occasion. At best the Yates bill can only be regarded as a temporary expedient adopted in deference to the labor vote. It is hardly possible that the State ac-

count system, with all its plant of valuable machinery and well organized processes, to say nothing of the skill acquired by men during their confinement, fitting them for future usefulness, will be so summarily done away with.

The Western Iron Trade.

Fires, accidents, labor disputes, lack of business and insolvency have latterly been operating with unpleasant harmony in suspending activity at quite a large number of Western iron establishments. Taking also into consideration the nail factories and steel works now running on part time only, the diminution of production has been very heavy, and, if the depression in business can be cured by a curtailment of the output of iron and steel, the remedy is being administered in doses which ought to insure speedy recovery. Undoubtedly the first step toward securing a better condition of the trade is to adjust the supply to the demand. Prices will then cease to decline. After that other circumstances must determine the extent of the demand—its growth or decay.

Judging from the recent course of prices it would seem that—in the West at least—the supply had been brought down to proper dimensions to suit the demand. Bar iron has been quite steady; pig iron appears to have touched bottom; plate iron is firmer and wrought-iron pipe resists attempts to force it lower. The association of Western bar-iron manufacturers, formed at Cleveland on the 27th ult., will, if it meets the expectations of its promoters, assist still further in preserving the proper relations between the supply and the demand and will extricate the trade from its present unsatisfactory condition. While Bessemer pig iron is the only kind in which there has thus far been an actual advance in price, other classes of pig iron are not being offered so freely, and shrewd buyers are quietly absorbing the cheap lots on which they had been given option some time since. The cheapest grades of Southern iron are firmer and not so abundant as they have been. Even old rails are not so weak as they were a month since, when free offerings met with a quick response from buyers, which soon changed the tone of the market.

But the conditions now prevailing seem to favor a better state of things than merely a balance of the supply and demand. It is true that orders for steel rails are far below the capacity of the mills, and that a very important branch of the iron and steel trades is thus deplorably dull, yet railroad building has not been suspended this year, and the new mileage so far laid surprises nearly everybody, while the prospects for the closing months of the year are fairly bright. A better demand for rails will surely be felt in the next six months. Even now large orders could be taken if bonds would be accepted in whole or part payment for them. With abundant money and with idle capital accumulating in our financial centers it would be strange if the best of the projected railroad enterprises should not be undertaken while rails and other railroad material as well as labor can be had cheap. The fact that this is Presidential year may influence some enterprises, but there are plenty of others which will be pushed without regard to that disturbing influence. The crop prospects are also continually improving, and the indications are that we shall not only raise enough for our own wants, but that we shall have something to spare for export. With our farmers prosperous the nation is blessed. A direct result of their prosperity is the heavy trade in agricultural implements which is now in progress, and which in some lines surpasses all previous experience. Three of the largest manufacturers of harvesting machinery in the Northwest state that by the 1st of August they will have empty warehouses, whereas they usually carry over a good stock to the following season. Their orders for material to be worked up into farm machinery for next year will be larger than ever, and the iron and steel trades may expect to be correspondingly benefited. When these abundant crops, which now seem to be assured, begin to be moved, the railroads of the West will be lifted out of the Slough of Despond, and their increased earnings will enable them to make sorely needed repairs and add to their equipment, also with benefit to the iron and steel trades. The collapse of the Western rolling-mill lockout is far from being a calamity under these circumstances. Individual manufacturers may suffer loss or receive no profit from the operations of their mills because their workmen are paid a higher rate of wages than present selling prices justify, but the country generally is the gainer by the resumption of activity in an industry employing many thousands of well-paid men and consuming materials whose production and transportation employ other thousands.

Much more of an encouraging nature could be gathered from the situation, but it is not our purpose to enter fully into such details, as a wrong impression would be created. The prospects are not favorable for a "boom" by any means, but, on the other hand, those who are waiting for prices to settle still lower in consequence of a more depressed state of trade should heed the conditions now existing and not defer their purchases too long. The evident holding back of orders for the past three months, and the large consumption going on, must have resulted in low stocks in many lines of goods throughout the West, and if a general buying movement should set in a sharp advance would result. This is not desirable and would not be beneficial to business in the end, as the inevitable reaction would cause business to sag again, with the usual unsatisfactory results to buyers and sellers.

It is a matter of congratulation to the members of the iron and steel trades that the present severe depression in business and the long-continued decline in prices have not been accompanied with numerous and important failures. Few have been reported thus far, and of them the most conspicuous have been caused by outside operations apart from the legitimate conduct of their business in manufacturing iron or steel. This argues a soundness of financial condition among our manufacturers which is indeed highly gratifying, and at the same time speaks volumes for their generally excellent management, through which this has been secured.

A Tin-Plate Industry.

The tin-plate question has been so thoroughly discussed in public and in private for years that it would seem almost impossible to present a new phase. Yet there is a new view of it to be taken, and possibly it may upon examination be found to be an important one. Nobody is satisfied with the present rate of duty imposed on tin plate. It offers no inducement to capitalists to embark in the business of manufacturing tin plate, as they cannot figure out a possible profit on the investment of capital and the expenditure of time and energy required to equip and operate the works, when tin plates can be laid down in this country so cheaply, paying 1 cent per pound duty, by the Welsh and English makers. Nor are the American consumers of tin plates pleased with the existing arrangement. The duty of 1 cent per pound appears to them to be a wholly unwarranted tax on their business, as the revenue derived from it is not required by the national Government, and has proved to be of no use in building up, under its protecting influence, a tin-plate industry in this country. The manufacturers of black and galvanized sheet iron and their special customers defend the duty, not because they deem it right in itself, but because their trade will be seriously disturbed if tin plates can be brought into this country at a considerably lower price than is now charged for them.

The rate of duty, from present appearances, bids fair to be continued as it now stands, notwithstanding the determined effort which has been made on the one hand to remove it and the urgent appeals from important interests on the other hand to double it. If it remains at 1 cent per pound what will be the outcome? Will those who desire to see a tin-plate industry established in this country continue their slow course of agitation and education in favor of higher duties, hampered meanwhile at almost every session of Congress by appeals for the total abrogation of the duty? The last serious attempt to advance the duty was made in 1883, when the tariff was revised largely upon the lines laid down by the Tariff Commission. The commission recommended a duty favorable to the views of the advocates of an American tin-plate industry, but a Congress of protectionists refused to be guided by their advice and even reduced the duty from the old rate of $1\frac{1}{10}$ cents. From 1883 to 1888 what has been done? Five years have really been wasted.

The vital point to-day in the discussion of the tin-plate question, in the light of the possible creation of an American tin-plate industry, is that no attempt is being made at the actual establishment of thoroughly-equipped works on this side of the Atlantic. Quires of foolscap have been wasted in writing on the subject and bewailing the unfortunate position of America in not supplying her own wants in this important branch of trade, but nothing tangible is being done, and years and years are being allowed to slip by unimproved. Those who say that higher duties will start the wheels of enterprise and set them in active motion are told that protective duties are intended to protect something in existence and not to create industries, if indeed they are not told that

higher duties would be useless because the art of making tin plates is not understood by our people.

It is suggested that it rests plainly with the advocates of an American tin-plate industry to get together, subscribe the necessary capital, build tin-plate works, operate them, show that good tin plate can be made here, publish the actual figures of cost from their books showing what can be done under the most careful and economical management. Then it is urged they may trust to the good sense and patriotism of the American people to do what seems to be right afterward to continue the start thus made toward founding a new industry. It is insisted that the manufacturers of sheet iron, of galvanized iron, of roofing materials and of all other articles affected by the condition of the tin-plate trade are the people who should contribute to an experiment of this kind and do all in their power to make a practical test of the tin-plate question. It is argued that if they do not there is little hope that the end they desire can be accomplished, while there is every prospect of increased protests from consumers having the effect in time of entirely wiping out the tin-plate duty.

Engines of a class now but seldom met with in large sizes are those of the trunk type, which in past years, working under low pressures, have been known to give very good results. With the main peculiarities of their design many of our readers are no doubt familiar, the pistons being made of cast iron, and, with their trunks, constituting really open-ended cylinders working through large stuffing-boxes in the covers of the engine cylinders proper. In virtue of this construction piston-rods were entirely dispensed with, and the connecting-rods were directly attached to pins bolted to the pistons inside the trunks. The compactness secured in this way was the chief advantage gained, especially for use on board ship, where economy of space is always an important desideratum. In this respect the engines compared favorably with those of the oscillating type, admitting, moreover, as the latter also, of being so placed as to bring the center of gravity to a low level. Even with low pressures, however, considerable difficulty was experienced in keeping the trunks in a steam-tight condition, and the exposure to the atmosphere of large surfaces coming in direct contact with the steam in the cylinders gave rise to appreciable losses from radiation and condensation. In these circumstances may be found a partial explanation of the relegation of the trunk engine to comparatively light work, for which we still find it sometimes used, some of the older makers of small hoisting plants supplying examples. One of its features, which we did not mention above, is the absence of crosshead and guides. It is on this account that trunk engines are always worked in the opposite direction to ordinary engines, no downward thrust of connecting-rod being thus added to the weight of the piston and trunk to be supported by the cylinder surfaces. This weight alone is very often considerable and would scarcely admit of being increased without causing great wear. With the direction of revolution adopted the thrust of the connecting-rod is always upward, and the weight resting on the cylinder surface is therefore only the difference between the two.

Naphtha Launch Engines.

Elsewhere in this issue we publish results of several tests which were made at Stevens Institute a short time ago with the view of determining the cost of power in the recently much-talked-of naphtha launches. The results are at the present time specially interesting, bearing out in a great measure the truth of the claims made for the engines in point of economy, and moreover opposing, though only apparently, much that has hitherto been regarded as incontrovertibly established by the accepted laws of thermo-dynamics. Experiments which have been conducted in England within the past few weeks with practically the same type of engine as that used by Messrs. Doty and Beyer in their work at Hoboken have, in addition, given results which tend to thoroughly sustain the conclusion that, as compared with steam, naphtha vapor is much the more economical working fluid in an engine cylinder. It is greatly to be regretted, however, that the conditions under which the Hoboken tests were made did not admit of giving the subject as much time as its importance warranted, and some very desirable comparisons had, therefore, to be omitted, the work thus being left incomplete, though still in such shape as to indicate about what might be expected. We refer particularly to the fact that the engine was tested under naphtha alone, no steam test being made, and no comparison of the powers developed and actual costs of running with the two fluids therefore being possible. We are glad to know, however, that this matter will receive special attention in another and more extensive series of trials shortly to be carried out at Stevens Institute. In the present instance, moreover, the engine, as the published indicator diagrams show, worked under the disadvantage of late valve opening, and attempts to run at a speed higher than that obtained—about 280 revolutions per minute—proved unsatisfactory. The power developed, therefore, fell short of the full capacity, being a little over 0.9 horse-power for each of the three cylinders, or, according to the table of results, a total of 2.8 horse-power, and with the ruling market price of naphtha at the time of the test the cost per horse-power per hour was 6.2 cents. It is in this figure probably more than in any of the other results arrived at that interest will chiefly be felt, though here, as well as in the determination of the quantity of water necessary to condense the naphtha vapor exhausted from the engine, the want of a basis for comparison will be keenly experienced.

In the absence, for the present, of this information from the report before us, it is of interest to turn to the records of the English trials, in the course of which naphtha and water were used alternately. The trials themselves, as reported in the London *Engineer*, consisted of continuous runs of three hours' duration, over a measured distance, during which, at frequent intervals, indicator cards were taken, and the number of revolutions of the engine and the speed of the launch recorded. The difference in power developed was very marked, and the speeds were found to be practically those due to the differences in power, confirming thus the correctness of the diagrams. When running with naphtha the mean results of four trials were as follows: Cylinder pressure, 34.35 pounds; revolutions per minute, 263; indicated horse-power, 2.588. For steam, under precisely the same conditions, the figures were, 15.09, 141 and 0.598 respectively. These results, we need scarcely say, may be studied with a good deal of interest The English experiments showed also that with steam the engines developed about 1 horse-power for every 17 square feet of boiler heating surface, while with naphtha barely 4 square feet were sufficient to accomplish the same work, the reduction of boiler weight per horse-power when using naphtha being thus very remarkable. It is interesting to note here that in the case of the engine tested at Stevens Institute a very close approximation to one of these figures was obtained. The heating surface of the boiler there used may be taken according to the given dimensions as about 12 square feet, not sufficient, if we accept the customary rating for steam boilers of 15 square feet for each horse-power, to develop one horse-power when working with steam, and yet giving with naphtha a little over 2.8 horse-power, or a proportion of about 4.2 square feet of heating surface to each horse-power. Assuming, as was actually the case in the Eng ish trials, that equal amounts of heat are supplied to the boiler both when running with steam and with naphtha—or, in other words, that the quantities of stored up and available energy are the same in both cases, it is obvious that the superior result obtained with the naphtha vapor is entirely due to the fact that the proportion of this energy held by it which can with present methods be converted into useful work; is greater than that which can be obtained from the steam. A comparison of the latent heats of evaporation and of the methods of condensation which are necessarily employed will more clearly illustrate this. For the present, therefore, it may not unreasonably be questioned whether successful competition of a non-aqueous vapor with steam is so entirely impossible of achievement as it has been generally represented to be. In any event, further investigation both here and abroad bearing upon the merits of the naphtha engine will be followed with interest.

The contest over railroad freight rates in Iowa continues very interesting. A strong protest has been made against the new rates fixed by the State Commissioners, the railroad companies claiming that the schedule adopted was ruinous to them and that it was much lower than the rates paid in more populous sections of the country. Their appeal to the courts to interfere in their behalf has already been referred to in these columns. In view of this litigation the commissioners are advising shippers to pay the rates charged in excess of the tariff under protest and to await the final decision of the matter. In the meantime, shippers are sending to the commissioners, to be used in evidence in the courts, bills of lading on all the different roads interested, showing rates paid from one-fourth to one-half less than the

new State tariff, and these rates were voluntarily made during the period extending from December to June. Nearly 1000 of these silent but powerful witnesses against the railroads had been received up to last week and more will probably follow. They will establish a justification of the action of the commissioners which will be difficult to combat. Evidence has also been submitted to show that the Iowa tariff is not lower than on Eastern roads in populous districts, the rates submitted as charged on the Pennsylvania Railroad being one-half lower. Whatever the outcome of this contest may be, it is evident that the Iowa shippers are determined that they will secure more considerate treatment from the railroad companies traversing their State.

The great "Q" strike, like Banquo's ghost, will not down. Although the company's officials have professed to ignore the existence of a strike, the financial statements published show that a surplus of $1,000,000 at the end of last year has by some means become converted into a deficit of $3,000,000, which can be accounted for on the theory that the company and the discharged engineers are engaged in a relentless struggle. Chairmen Hoge and Farrell, of the local Grievance Committee, agree that there are 1600 engineers and firemen now in idleness who are drawing on the treasury of the order at the rate of more than $1,500,000 per annum. Already the expenditure exceeds $800,000, according to common report, and it is not difficult to believe that on either side the situation is becoming desperate. Contemplating this whole affair, no friend of law and order has reason to regret that the courts are at last compelled to take cognizance of the facts in the case. It is alleged that an overt act has been committed in the placing of dynamite upon the tracks of the "Q" road, thereby hazarding life and property. Upon this showing no compromise is admissible apart from the infliction of penalties that shall fully vindicate the majesty of the law. The most serious fact in the situation is the attitude of the Brotherhood of Engineers in its relations to the alleged offenders, which is equivocal, to say the least. Chairman Hoge, of the striking engineers' Grievance Committee, and Chairman Murphy, of the firemen's committee, are among those now out on $5000 bail, charged with being deeply implicated in the conspiracy. Despite this fact the singular spectacle is presented of these men "virtually doing the company's work," as explained by the counsel for the prosecution, at whose request the trial, to have taken place on the 21st, was postponed to July 28th—the alleged conspirators meanwhile making an extensive tour among their disaffected compatriots at St. Joseph, Galesburg, Creston, Atchison, Hannibal, Quincy, &c. Already the ominous intelligence comes from Chairman Hoge, at Omaha and St. Joseph, that "the votes thus far taken are practically unanimous for continuing the strike," all of which may be construed as a rejection of the terms offered by Arthur and the "Q" officials, and a resolve to persist in the ruinous course which Hoge and others seem to have marked out for themselves, possibly once more stopping the interchange of freight by all connecting roads. But the courts remain to be heard from. Clearly enough the course of events foreshadows a disruption of the Brotherhood, by which process it will be purged of the radical element.

CORRESPONDENCE.

Nickeline.

In reference to the inquiry which we published last week for the address of the makers of "nickeline," we have received from Messrs. Belcher & Loomis, 60 to 64 Weybosset street, Providence, R. I., the following letter, addressed to our correspondent, "J. B. K.:"

"We answer your inquiry for nickeline by stating that it is made by the Wessell Metal Company, 521 West Twenty-fourth street, New York. We are selling agents, and the price in 100-pound lots only is $1 per pound, the metal not being thinner than No. 25 by the Brown & Sharpe gauge.

"In this connection allow us to call attention to another metal, for which we are also agents, called Corinthian Silver. This also is as white as nickeline, and possesses the same non-tarnishing quality. It differs from nickeline in that it can be shaped, raised, spun or struck up in any form, the same as sheet brass. Nickeline will not do this, being very hard and stiff, like a plate of steel. The price of Corinthian Silver is 60 cents per pound up to No. 20 A B gauge in any quantity. We are selling just now large quantities of this to manufacturing jewelers, who make it up into ornamental boxes and charms and ornaments to hang on the watch guard, and which they probably sell for silver. In fact, it is better than silver, because it holds a beautiful polish and will not tarnish or change color. In wire it costs 15 cents more. Thinner than No. 20 is advanced 1 cent per pound for each number up to 26 and 2 cents for each number above 26 to 36."

The Chicago Smelting and Refining Works.

E. A. C. Du Plaine, proprietor of the Chicago Smelting and Refining Works, has erected a building specially adapted to his business at 240 South Jefferson street, corner of Congress, Chicago. His old quarters at 64 and 66 South Canal street, which were sufficiently large in the early days of the establishment, were outgrown, and more extensive facilities have for some time been required. In the new building referred to, the arrangements are such as to insure the operation of every department to the best advantage. The works occupy a lot 30 feet in width by 125 feet in depth. The foundry department has a capacity of two No. 150 crucibles, two No. 80 crucibles and two No. 50 crucibles, equal to 4000 pounds of brass or bronze daily. The necessary core ovens and molding tubs are provided. The building is very light, ample room is given to the machinery, and wherever improved appliances could be introduced they have been used, so as to secure the highest efficiency.

The list of products made by Mr. Du Plaine is quite extensive, embracing bronze or brass castings, phosphor-bronze, nickel-bronze, architectural or ornamental work, and United States standard gun metal work of any required weight for machinery, engines, rolling mills, mining pumps and railroads. A special plant is employed for making anti-friction or Babbitt metals, tinsmiths' and plumbers' solder, plumbago and nickel Babbitt, stereotype and electrotype metal, coffin and fusible alloys, &c. The erection of the new works enables Mr. Du Plaine to add the assurance of prompt execution of orders to the guarantee that the goods ordered will be of the best quality.

The Strike at Singer, Nimick & Co.'s Works.

A conflict of no little importance is now being waged at Pittsburgh between Singer, Nimick & Co., Limited, the well-known steel manufacturer of that city, and the Knights of Labor, the outcome of which is being anxiously watched for not only by the parties directly interested, but by other manufacturers and labor organizations all over the country. The differences which led to the trouble are somewhat different from those frequently occurring between firms and their employees, as the controversy is not one of wages, but was caused by the firm arriving at the conclusion to conduct their business in the future independent of the Knights of Labor, the Amalgamated Association or any other labor organization. Last May the firm announced that a 10 per cent. reduction in wages would be made, to take effect on the first day of June. The majority of the workmen belong to the Knights of Labor, while a few are members of the Amalgamated Association. The men decided to accept the reduction, and continued at work without interruption until the annual meetings of the above-named organizations, which were held in Pittsburgh last month. As soon as the officers of these organizations learned that the men had accepted a reduction in wages without being authorized to do so they were at once notified that they must demand the restoration of the reduction or be expelled from their association. The men at once complied, and when a return to old wages was refused struck, the works being closed down in all departments. On Wednesday, the 27th ult., the firm announced that all their employees had been discharged, and that any person wishing to enter their employ must do so independent of any labor organization—or, in other words, the firm had decided to employ only non-union men. The firm later announced that the 10 per cent. reduction in wages had been withdrawn, and the same wages would be paid as before the reduction was ordered. The action of the firm in discharging all their employees was wholly unexpected by the Knights of Labor and the Amalgamated Association, and at a joint meeting of these bodies it was decided to notify all their members to remain away from the works until the trouble is settled. Any member who resumes work without permission will be at once black-listed. Up to this time the firm seem to have decidedly the best of the situation, as about one-half of the works are in operation, and applications are being received every day from old employees who wish to return to work.

It is confidently predicted that inside of a month enough men will have been secured to run the works full time in all departments. In view of some very disastrous defeats which the Knights of Labor have suffered in Pittsburgh during the present year, it is safe to assert that that organization is not the power it once was. It sustained a defeat some months since at the hands of Park, Brother & Co., Limited, proprietors of the Black Diamond Steel Works in that city. The plant of this company is one of the largest in the country, and its employees are all non-union men. No labor organization of any kind is recognized. Only a few months ago Carnegie, Brothers & Co., Limited, proprietors of the Edgar Thomson Steel Works, administered a crushing defeat to this organization which came well nigh

disrupting it altogether, and now comes Singer, Nimick & Co., Limited, who bid fair to do the same. From these facts the deduction is drawn that the Knights of Labor are slowly but surely losing their hold, and that in time the organization will exist only in name, so far as the Western steel mills are concerned.

Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., July 24, 1888.

The Tariff Reduction bill of the Committee on Ways and Means, after a long and tedious discussion, has at last passed the House of Representatives. The vote, as is known, was: Yeas, 162, and nays, 149. This gave the bill 13 majority, which was larger than was expected by the friends of the measure. The illness of Mr. Randall had something to do with the scattering of his followers, who originally numbered eight, and fell to four when the vote was taken.

Chairman Mills has had a very carefully compiled table prepared, which shows the operations of the bill upon articles placed on the free list and in the schedules. The following is the official exhibit:

Free List	1887.—Importations.		Average ad val'r'm under	
	Value.	Duties.	Present per cent.	Proposed per cent.
Wood, salt, hemp, chemicals, metals, &c.....	$61,672,120	$16,799,450	27.24	.....
Wool.....	18,206,988	5,390,054	29.60	.....
Total free list	$79,879,108	$22,189,504	27.78	.....

Schedules.	Importations of 1887.		Estimated		Average ad valorem under	
	Values.	Duties.	Duties under proposed bill.	Amount of duties remitted.	Present per cent.	Proposed per cent.
A, Chemicals.....	$5,050,325	$2,012,121	$1,133,847	$878,274	39.84	22.45
B, Earthenware and glassware.....	10,492,067	6,920,108	5,163,820	1,756,288	65.96	49.21
C, Metals.....	16,152,780	8,456,847	6,976,375	1,480,473	52.35	43.19
D, Wood and woodenware..	889,559	307,805	260,218	47,587	34.60	29.25
E, Sugar.....	68,897,102	56,515,602	45,223,514	11,292,088	82.04	65.64
F, Tobacco.....	26,441	21,567	10,064	11,502	81.57	38.06
G, Provisions.....	3,235,988	1,711,806	1,380,321	331,485	52.89	42.65
I, Cotton and cotton goods..	2,423,585	1,233,600	955,989	277,610	50.90	40.00
J, Hemp, jute and flax g'ds.	17,434,514	6,228,310	4,185,955	2,042,356	35.72	24.01
K, Wool and woolens.....	42,448,127	29,256,443	16,925,862	12,330,581	68.92	39.87
M, Books, papers, &c.	57,298	13,982	10,425	3,557	24.40	18.19
N, Sundries.....	11,221,253	4,984,936	3,905,795	1,079,141	44.42	34.79
Total dutiable.....	$178,329,049	$117,663,127	$86,132,185	$31,530,942	65.98	48.30
Total free list.....	79,879,108	22,189,505	.....	22,189,505	27.78	....
Total.....	$258,208,157	$139,852,632	$86,132,185	$53,720,447	54.16	33.36

It will be seen that the aggregate average ad valorem reduction in the free list is 27.78, and under the schedules of dutiable articles from 65.98 per cent., the present average standard of protection, down to 48.30 per cent.

The Senate Sub-Committee on Finance closed their hearings for the present last week. A delegation representing the metallurgical interests under the bill, consisting of H. W. Oliver, John Kennedy and Robert G. Bushnell, of Pittsburgh; Cyrus Elder, of Johnstown, and Charles J. Gilpin and J. M. Swank, of Philadelphia, gave the committee the benefit of their knowledge and experience in this important branch of industrial enterprise and activity. In the Senate bill cotton ties are left at 35 per cent. ad valorem; tin plate at 1 cent., and steel rails $\frac{7}{10}$ cent a pound.

The House bill has been referred to the Senate Committee on Finance. That committee is ready with its substitute, but there seems to be a hitch in the proceedings. The Republican Senators are divided upon the expediency of embarking in a long tariff debate at this unusually late date in the duration of a session of Congress. The opponents of discussion favor reference of the Mills bill to the Committee on Finance, with authority to sit during the adjournment of Congress and with instructions to take testimony and mature a bill making a reduction of $70,000,000 of revenue by repeal of the tobacco tax and duties on sugar and alcohol used in the arts, together with such an adjustment of duties as may be in harmony with the maintenance of the principle of protection of home industries. The other wing favor reporting a substitute for the House bill forthwith and pending the debate continue their hearings.

The Democrats, upon the advice of the President, favor discussion. The President is not satisfied with the debate in the House. He regards it there as having been of a sectional character viewed from the standpoint of the interests of the district represented by the Speaker. In the Senate he expects a broad national view to be taken of the doctrines enunciated in his message, which will represent it to better advantage. The Republicans will hold a caucus to determine their course. It will require a unanimous vote on their part to postpone, as the Democrats will be equally solid on the other side. If the tariff debate is once begun in the Senate the middle of September will have arrived before the end of the contest will have been reached. The Senate will doubtless have passed their substitute. The question will then be thrown into conference. The conferees will disagree, pending which Congress will adjourn. The two propositions, the House bill and the Senate substitute, will then stand side by side with the people in the campaign to decide for themselves as to the safest and surest method of reducing redundant revenues.

The Attalla Furnace.—The Attalla Furnace Company, of Chattanooga, Tenn., of which L. S. Colyar is president, D. J. O'Connell is vice-president and D. W. Hughes is secretary, are pushing work on their furnace at Attalla, Ala. The stack is to be 55 feet high by 11 feet bosh, equipped with cast-iron stoves of special pattern, with 60 pipes, and two boilers, each 54 inches in diameter and 28 feet long, and two 18-inch flues. The Weimer engine has a 26-inch steam cylinder and 60-inch blowing cylinder, with 4-foot stroke. The iron cast-house is 55 x 100 feet. Of the three stock-houses two are 50 x 150 feet and one 50 x 300 feet, with elevated tracks and a full equipment of tracks for all other purposes. The foundations are now complete and all the ironwork is on the ground. All the machinery is contracted for and will be on the ground by October 1, and it is expected that at the latest the furnace will be in blast on January 1, 1889. The furnace is to be run with charcoal, with a view of making high grade car-wheel iron. The ore to be used is what is known as the Dirt Seller vein, obtained near Round Mountain, 30 miles from Attalla, on the Rome and Decatur Railroad. Iron has been made from this ore long before the war, and was used quite extensively in the mixture at the Confederate States Gun Foundry, at Selma. For car-wheel purposes and for requirements calling for great strength the iron made from this ore has acquired a reputation.

Rapid Transit in Chicago.

The South Side Rapid Transit Company, of Chicago, deposited $100,000 with the city treasurer on the 20th inst., in compliance with the terms of the ordinance empowering them to build and operate their elevated railroad. The line is to be completed for one mile from Van Buren street within two years, or this money will be forfeited. The route to be traversed by the road is as follows: Commencing at the North line of Van Buren street, at some point between Dearborn and Wabash avenue, and running southwardly over such lots, lands and property as the company now own or hereinafter may acquire between Dearborn street and Wabash avenue to a point to be selected by the company between Thirty-seventh and Thirty-ninth street, thence eastwardly or southeastwardly, to a point to be selected by the company between Dearborn street on the west and Forest avenue on the east, at which point to cross the city limits. The right of way to be acquired must not exceed 30 feet in width, except at curves and termini and at intermediate stations. The right of way must be parallel with and immediately adjacent to an alley or alley lines. The structure in style, strength and architecture is guaranteed to be equal to the best in New York, Brooklyn and Boston. The rate of fare to be charged is not to exceed 5 cents per passenger for any one continuous trip within the now city limits. It is understood, to be the intention of the company to construct three tracks. This will enable them to mass the cars and run through trains into the city in the morning and out of the city in the evening on the third track, while the regular local trains, stopping at all stations, will be run on the other two tracks. Condemnation of property for the right of way has already begun.

Superintendent Bell of the Foreign Mails Service has received a copy of a contract concluded in January last between the Government of the Argentine Republic and Robert P. Houston, of England, by which the latter agrees to construct ten steamers of at least 4000 tons burden and 16 knots per hour each, to ply between the north of Europe and the ports of the Argentine Republic, and four steam launches for emigrant service in Europe; also four steamers to ply between the United States and the ports of the Argentine Republic. The Government of the Argentine Republic guarantees a loan of 5 per cent. per annum on £1,250,000 for the European service, and 5 per cent. per annum on £360,000 for the United States line.

With a weight of 20,000 pounds on each driving wheel of a locomotive, a safe maximum has probably been reached. Close examination of the steel rails where engines having this enormous weight on the drivers are running, indicates that the limit of economy has been passed.

Foreign Markets.

EQUIVALENTS.

	Cents.
Franc, Peseta or Lira	19.3
Florin (Netherlands)	40.2
Fiorl (Austria)	35.9
Milreis (Portugal)	$1.08.
Milreis (Brazil)	54.6
Mark (Germany)	23.8
	Pounds.
Kilogram	220.5
Picul	134.

CHILI.

VALPARAISO, May 25, 1888.—*Copper.*—Up to the 14th inst. $30 ℔ quintal was still paid, but on lower cable news a decline subsequently took place to $28.80, dealings aggregating 10,785 quintals, the latter price with 27/6 freight per steamer, equaling £71. 18/8. *Nitrate.*—The demand both for Europe and the United States abated somewhat during the fortnight, transactions being limited to some shipments per steamer. Holders have meantime remained quite stiff at $2.72½ @ $2.75 for 95 %, which equals, with 28/9 freight, 8/3½ ℔ cwt., there being a scarcity of 96 % Nitrate, $2.90 is asked for the same. Sales sum up only 84,500 quintals. Charters have amounted to 19,800 tons for Europe. There were shipped since January 1:

	1888. Quintals.	1887. Quintals.	1886. Quintals.
To the North of Europe	3,372,327	2,392,801	1,619,139
To the Mediterranean	41,916	102,136	57,298
To the United States on the Atlantic	661,042	688,375	422,437
To the United States on the Pacific	67,500	118,296	82,113
Total	4,142,785	3,301,608	2,180,987

Coal has been sustained; we quote Newcastle, February shipment, 55/; March, 49/; April, 43/6 @ 44/6; May, 37/6, and June, 36/; Australian, August, 33/. *Exchange*, 90 days' sight, 25⅝d.—*Weber & Co.*

WEST INDIES.

PORT OF SPAIN, TRINIDAD, June 22, 1888.—*Asphaltum.*—A moderate demand has prevailed since my last reports, at well-sustained figures. I quote to-day, f.o.b., including export duty: Boiled, ℔ ton, $14.04, and Crude, $6.84. There have been shipped altogether since January 1, 26,081 tons, against 16,412 last year, and 14,696 in 1886. *Exchange*, 90 days' sight, $4.74 @ $4.80.—*E. P. Masson.*

SOUTH AFRICA.

PRETORIA, June 11, 1888.—*Gold.*—The May gold production of the Witwatersrand gold fields has been 19,002 ounces, as compared with 15,853 in April; 14,706 in March; 12,161 in February, and 11,269 in January, constituting a total in five months of 72,991 ounces, and demonstrating the rapidly rising importance as a gold producer of the district named.—*Tremsvaal Mining Argus.*

EAST INDIES.

COLOMBO, June 14, 1888.—*Plumbago.*—Our market has been moderately active and steady. We quote in rupees ℔ ton: Large Lumps, 145 @ 160; Ordinary ditto, 125 @ 150; Chips, 80 @ 95, and Dust, 40 @ 65. Shipments since October 1 have been as follows: To England, 53,862 cwt.; to Marseilles, 38; to Trieste, 419; to Hamburg, 6955; to Antwerp, 3189; to Bremen, 1012; to India, 82, and to the United States, 98,914—together, 164,471, against 172,413 in 1887; 133,564 in 1886, and 127,003 in 1885. *Coir Yarn*, Nos. 1 to 4 may be quoted 7 to 12 rupees ℔ cwt. *Exchange*, six months' 1/4 7-16.—*Volkart Brothers.*

PENANG, June 9, 1888.—*Tin.*—While the demand for Europe and America has ceased altogether, China, on the contrary, has taken 6500 piculs. There was a decline from $34.75 ℔ picul to $34.10, followed by a recovery to $34.60, winding up to-day at $34.50. Receipts for the fortnight summed up 7500 piculs, and there are only left unsold in bazaar 50 tons. Some of the shipments to China were made for smelters' account. During the first five months shipments from here have summed up 76,072 piculs to England, against 63,571 same time last year; to the Continent, 338, against 815, and to the United States 485, against 9682. *Gum Benjamin* may be quoted: No. 1, $34 @ $69 ℔ picul, and No. 2 $30 @ $50; prime *Gutta Percha*, $60 @ $100, and *India Rubber*, $70 @ $75. *Exchange.*—Four months' bank, London, 3/0⅝.—*Schmidt, Kustermann & Co.*

SINGAPORE, June 2, 1888.—*Silver Coin.*—A strong movement is on foot to induce the home government to coin a British Silver dollar to circulate in the Straits Settlements and Hong-Kong in the place of the Mexican dollar; the latter, though it has full weight, wears off rapidly, is rough-looking, and entails a dependence on Mexico frequently of an annoying kind. Since the failure of the Hong-Kong mint all agree that it would be useless to try to prevail on the home Government to make another experiment of the kind and create a Colonial mint, but it may not object to the British mint coining such dollars of the fineness and weight of the Mexican for circulation here, at Hong-Kong and China. While the Hong-Kong Chamber of Commerce is ready to support the project, the Hong-Kong Colonial Government declines to favor it, because in its opinion the British dollar cannot be produced as cheaply as the Mexican. Yet France and Spain have taken steps to coin dollars for their East India colonies.—*Straits Times.*

MANILA, July 16, 1888.—*Hemp*—Has been steady during the week at $8.62½ ℔ picul as compared with $7.75 last year. These quotations equal ℔ ton, cost and freight, £28. 12/6, against £26. 14/4; cleared for the United States, since last cable, 2000 bales, against none; ditto since January 1, 99,000 bales, against 123,000; loading for ditto none, against 13,000; cleared for England since January 1, 186,000, against 112,000; loading for ditto 22,000, against 23,000; cleared for all other countries, 42,000, against 22,000; receipts at all ports since last cable, 9000, against 8000; since January 1, 323,000, against 250,000 in 1887, and 200,000 in 1886. *Freight*, $5.50, against $5. *Exchange*, 3/5⅝, against 3/5⅝.—*Ker & Co. to Charles Nordhaus, New York, per cable direct.*

CALCUTTA, July 9, 1888.—*Jute.*—The market has remained steady during the week. In new crop Jute a steady, moderate business is being transacted daily, the bulk being for shipment via. canal in August and September, either to London or Dundee. The amount shipped to the latter is considerably less than the previous months; it seems that the higher prices cause this falling-off. There is for the present little prospect that prices will drop all of a sudden, hence our balers are by no means anxious sellers. The first receipts of new are likely to be bought up by the East India spinneries. These will stand in need of a supply in August. As at the same time bales sold extensively, August delivery of new Jute, there is going to be a sharp competition, which will not favor a decline during that month. The old crop supplies being exausted on all hands, all consumers are eager to get the new jute; indeed, everything seems to point rather to higher than lower prices at the opening of the campaign. Week's sales, 50,000 bales at 24½ @ 27¾ rupees. Now balers ask more, and in a few instances have got it. Many orders from abroad have remained unexecuted. The weather is all that can be wished for to propitiate the new crop. Rains have been general without being too heavy anywhere.—*Times of India.*

SINGAPORE, July 15, 1888.—*Tin.*—Exports from here and Penang to the United States during the fore half of the present month have amounted to 150 tons, against 100 last year; to England, 200, against 500. Since January 1 they were respectively 1000, against 2700, and 10,200, against 7100.—*Gilfillan, Wood & Co. to Charles Nordhaus, New York, per cable direct*

SPAIN.

BILBAO, July 7, 1888.—*Iron Ore.*—Business has been resumed by the purchase of several single cargoes at 7/6 @ 8/ for Campinil, and 6/10 @ 7/3 Rubios. Since February, the demand for our Ores has fallen off considerably, some 400,000 tons. Since January 1 there have been shipped 1,965,633 tons, against same time last year 2,350,805. *Pig Iron.*—For export, 3875 tons were shipped during the week, and coastwise 1096. The spot price of the latter is 57 @ 60 pesetas f o.b. here ℔ ton, and futures are worth 55 @ 58; "Lingotillo" at Huelva or Seville, 65, all quotation of the "Vizcaya Company."—*Bilbao Maritimo y Comercial.*

SWEDEN.

STOCKHOLM, July 12, 1888.—*Iron.*—The Government will not yet allow the new duty of 80 oere ℔ 100 kg. on Pig Iron (about 1¢ ℔ ℔ American), to become operative, because for the time being it will afford no protection whatever to Swedish blast furnaces, but on the contrary would prove unwelcome to machine shops and foundries, so long as these remain unprotected by reason of the Franco-Swedish treaty of commerce. Should France consent to a modification of the latter, the way would be smoothed for a protection of Swedish Iron industry, and Parliament may then act accordingly—*Dagbladet.*

GERMANY.

HAMBURG, July 14, 1888.—*Iron.*—Business revives slowly in Rhenish-Westphalia from the interruption it suffered during stock-taking. There has been less of an export demand for Spiegel ever since May, when it was active. Domestic consumers continue taking the same steadily. The fact is that in consequence of dear raw material competition abroad has become difficult. Siegen quotes 10 to 12 ℳ 57. The quotation there for prime Forge Pig is 48 @ 49, at Siegen, and 50 @ 52 elsewhere; Luxembourg, 38.70 marks; all ℔ ton. English Bessemer is steady at 42/6. Finished Iron is quiet; the rolling mills have booked orders to last them for a couple of months. The domestic demand for Hoop Iron has improved, but it does not suffice, hence sacrifices have to be made to get rid of the excess on hand by consigning it abroad. Thin Sheets are dull still. Wire Rods have been placed more readily at home, but the American demand is slack still. Machine shops and foundries continue doing tolerably well. Car works are very busy. *Lead.*—At a general meeting of Spanish, German, English and French lead producers, recently held at Paris, the question was discussed most thoroughly what could be done to place the European Lead markets permanently, if possible, on a sounder basis. A committee of three was appointed to submit to another general meeting soon to come off a series of resolutions to be elaborated by the same. The committee was ordered to study particularly whether there is an approximate equilibrium between production and consumption; if it should be found that there is an excess of production, the committee is to suggest to what extent the latter ought to be curtailed. Finally, the meeting gave it as its opinion that the sale of European Lead should be concentrated in one hand in the future. *Sewing Machines.*—Manufacturers of and dealers in Sewing Machines in Germany have petitioned Parliament to raise the duty from 3 marks ℔ 100 kg., to 60 marks on the machines and 15 marks on the stands; the import was 18,935 metrical cwt. of 100 kg. in 1887, against 25,354 in 1886, and 26,848 in 1885; the amounts from the United States having been respectively 16,935, 21,840 and 24,358; and from Austria, 1864, 1844, and 1398. The export of German Sewing Machines was on the other hand 64,237 cwt. in 1885, 67,758 in 1886, and 73,473 in 1887. The impression at Hamburg is that under the circumstances it would have been wiser to let the subject rest where it is.—*Borsenhalle.*

The Vestibule Law Suits.—In the United States Circuit Court at Chicago two weeks ago, Judge Gresham and Blodgett granted the motion of the Wagner Palace Car Company to modify the preliminary injunction issued last month in the vestibule car case between the Wagner and the Pullman companies. The effect of the decision is that the injunction is dissolved, and the Wagner Company is at liberty to use the vestibule platform as originally constructed. By this action all proceedings in the litigation are stopped until the matter can come up for trial in the regular way, which will probably not be for over a year. in the meantime the Wagner Company give bonds.

The North Chicago Rolling Mill Company started up part of their Bay View Works at Milwaukee, Wis., on the 19th inst., having signed the scale. In reply to inquiries they state that for some time they will not run their puddling furnaces on metal direct from the blast furnace, as they have an accumulation of pig iron on hand which will first be disposed of. The resumption of direct puddling will depend upon the condition of trade, as the pig iron in stock may last for several months if the demand for finished iron is not more active. When it is cleaned up direct metal will again be used, as the results obtained with it in the first half of the year were very satisfactory.

The Postmaster-General has received official notice that the South American Steamship Company of Chili have been subsidized by the Chilian Government to establish a fortnightly service between Valparaiso and the Isthmus of Panama, to connect with the Pacific Mail Steamship Company to and from New York. The fleet of the South American Steamship Company consists of 18 large steamships, which are commanded principally by Americans. The subsidy is $250,000 per annum.

TRADE REPORT.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St. }
PHILADELPHIA, Pa., July 24, 1888. }

The general tone of the market seems to have improved during the past week, although upon a careful investigation Pig Iron appears to be the only article that shows genuine strength. This is probably due to the resumption of work at mills in the West, as most of them had cleaned up their stocks in anticipation of a more or less protracted lockout, and as they are now starting up they all require material to go on with, hence the active demand. It is not clear, however, that this signifies that the turning point in the market has been reached. Finished Iron is not as firm as it was two or three weeks ago, and, paradoxical as it may seem, for the same reason that Pig Iron is firmer. Pig Iron weakened on prospect of decreased consumption while Finished Iron strengthened on prospects of a decreased production, so that now the position is again reversed. Of course it is quite possible that a firmer and more active market may be developed along the entire line—we are rather inclined to believe that this will be the case—but as yet there are no positive indications of such an event, so that in the meantime it is all a matter of opinion.

Pig Iron.—As already stated, the market is firmer. A great deal of Iron has been bought during the past couple of weeks, and a continuance of the demand on a similar scale, and for a similar time, would probably lead to higer prices. The probabilities are, however, that the most needy buyers have covered their requirements for the next 30 or 60 days, and that the demand for some time will be of the usual routine character. Meanwhile large consumers are likely to watch the market closely, and if the indications point to a larger consumption than was met with during the first half of the year orders will be pretty sure to come in at a rate that will start prices on the way to a somewhat higher level. As far as we can learn the chances of an increased production are not very strong, as there is no money in the business at present prices. Three or four new furnaces in the South may be "blown in" some time before the middle of September, but they are not likely to exercise any material influence on the market, unless consumption proves to be smaller than the trade anticipates. Taking the market as a whole, there appears to be a possibility of somewhat higher prices as the season advances, while there is no probability of a movement in the opposite direction. This we believe fairly represents the feeling of the trade today, and is apparently fully warranted by recent developments. The excitement and uncertainity attending a Presidential election are not favorable for any very pronounced changes, but, when that question is finally settled every one expects a more active business. Prices of Pig Iron tidewater delivery may be quoted firm at the following prices, say: No. 1 Foundry, $18 @ $19; No. 2, do., $17 @ $17.50; Gray Forge, $15.75 @ $16. Southern Irons are not offered here to any extent, but could probably be bought ex-ship at $1 below Pennsylvania or Western makes, but they are not sought for, unless at low figures. A 2000- ton lot of Tennessee Iron was sold for Pipe making at something less than $14.50, but the transaction was somewhat exceptional in its terms, &c.

Foreign Iron.—Prices are entirely nominal, as there is no demand, and no inquiries likely to lead to business at present. Asking prices are as follows: Bessemer, $19 @ $20, c.i.f., duty paid, and 20 % Spiegel, $26 @ $26.50.

Blooms.—Business is rather quiet, but Steel moves fairly in small lots. Prices about as follows: Slabs and Billets from $29 to $35, f.o.b. cars at mill, according to analysis; Charcoal Blooms, $52 @ $54; Run-out Anthracite $42 @ $44; Scrap Blooms, $34 @ $35 ℔ "bloom" ton of 2464 lb. Foreign at tide, c.i.f., duty paid, $29 @ $30 for Nail Slabs; $31.50 @ $32.50 for 4 x 4 Billets, and $35 @ $39 for Siemens-Martin, price according to analysis, &c.

Muck Bars.—The demand is improving, and sellers find the market about 50¢ ℔ ton in their favor. Sales during the week have been made at $27 @ $27.50, delivered, with a general disposition to hold for the outside figures.

Bar Iron.—There is a somewhat heavier demand, but it is more than offset by the increased number of sellers. Prices are, therefore, more uneven than they have been for several weeks past, which in the majority of cases means lower prices. Mills are busy and can run two or three weeks on such orders as they have on their books, but beyond that there is some anxiety to secure new business. Competition is closer than ever, and the worst of it is that those making strictly first-class Bars have to bid against some who use a mixture of old rails and other cheap material. In one instance we hear of what was claimed to be a first-class quality of Bars offered at less than 1.7¢, delivered, but it is doubtful if anything strictly up to requirements could be had for less than 1.8¢, although some people seem to be willing to run the risks of a guarantee, even if what they furnish is not up to the standard. For this reason it is almost impossible to quote prices correctly, because, while 1.8¢ @ 1.85¢ is the usual quotation, some offer large lots at a great deal less. Skelp Iron is also a shade lower, although there is a better demand, and some good-sized lots have been taken at from 1.75¢ to 1.8¢ delivered.

Plate and Tank Iron.—The demand is fairly active and mills are nearly all busy for the present. Orders for fall delivery, however, could be readily placed at the low rates quoted some time ago, although for small lots early delivery prices are well up to the asking rate. The outlook is not specially discouraging, although for the present there is very little in sight beyond the ordinary routine demand. Asking prices about as follows: Ordinary Plate and Tank Iron, 1.95¢ @ 2.05¢; Shell, 2.4¢ @ 2.5¢; Flange, 3.5¢; Fire-Box, 4¢; Steel Plates, Tank and Ship Plate, 2.3¢ @ 2.4¢; Shell, 2.7¢; Flange, 3¢ @ 3¼¢; Fire-Box, 3¼¢ @ 4¼¢.

Structural Iron.—A good demand for small lots is reported and the mills are kept fairly employed on this class of business. The outlook is not particularly bright, but manufacturers express themselves somewhat hopeful of the fall trade, although with such a large capacity it will require a heavy demand to keep all the mills busy. Prices are unchanged, although it is said that Angles are steadier than they were some time ago. Quotations about as follows: 2¢ @ 2.10¢ for Bridge Plate; 2¢ @ 2.10¢ for Angles; 2.6¢ @ 2.7¢ for Tees, and 3.3¢ for Beams and Channels, Iron or Steel.

Sheet Iron.—A moderate amount of business is reported and at steady prices for the best makes, but there is a good deal of inferior stuff offered at low figures. Standard makes are quoted as follows for small lots:

Best Refined, Nos. 26, 27 and 28	3¼ @ 3½¢
Best Refined, Nos. 18 to 25	3 @ 3¼¢
Common, ¼¢ less than the above.	
Best Bloom Sheets, Nos. 26 to 28	4½ @ 4¾¢
Best Bloom Sheets, Nos. 22 to 25	4 @ 4¼¢
Best Bloom Sheets, Nos. 16 to 21	3½ @ 3¾¢
Blue Annealed	2.8 @ 3 ¢
Best Bloom, Galvanized, discount	62½ %
Common, discount	67½ %

Merchant Steel.—Fine Tool Steel has been in good demand during the past week, and several large sales have been made, while for cheap Steels there has been considerable inquiry, but very little in the way of immediate business. Prices for lots from store are quoted as follows: Tool Steel, 8½¢; Machinery, 2 7/10¢; Crucible Spring, 4½¢; Open-Hearth Ordinary Spring, 2 7/10¢ @ 2 8/10¢; Crucible Machinery, 5¢; Best Sheet Steel, 10¢; Ordinary Sheet, 8¢.

Steel Rails.—There is very little doing, and at $30 only small lots are taken. Mills in this vicinity claim that it would require to be a very desirable order to secure attention at a very low figure, although it is believed that several orders have been taken at less money by mills in the West. Still $30 at mill is the usual asking price for the present.

Old Rails.—The few lots that are here are held above the market, say $21.50 @ $22 in store. Buyers for small lots could be found at about $21, f.o.b. cars, but sales are chiefly at about $21.50 @ $22 delivered at mills in the interior.

Scrap Iron.—Market very dull, and prices feverish and irregular. Small lots of good quality command about the figures quoted a week ago, but the market will not bear much pressure: $18 @ $19 for cargo lots; $20 @ $21 for carload lots, delivered, or for choice $21.50 @ $22; No. 2 do., $14 @ $15; Turnings, $13 @ $14; Old Steel Rails, $19 @ $20; Cast Scrap, $14 @ $15; do. Borings, $9 @ $10; Old Fish Plates, $24 @ $25. Old Car-Wheels, $17 @ $18, Philadelphia, or its equivalent.

Wrought-Iron Pipe.—Contrary to all expectations the improving condition of trade in this department noted last week continues, and manufacturers feel confident of a fair business from this time on. Discounts are quoted as follows: Black Butt-Welded 55 %; on Galvanized do., 45 %; on Black Lap-Welded, 65 %; on Galvanized do., 52½ %; on Boiler Tubes 60 %.

Nails.—Trade is hesitating and there is absolutely nothing of interest to note. The small amount of business being transacted consists principally of small orders for city delivery. Price is nominally $2.05 from store, with the usual discount for carload lots.

Chicago.

Office of *The Iron Age*, 95 and 97 Washington St., CHICAGO, July 23, 1888.

Pig Iron.—An increased volume of business is reported, but trade cannot yet be called active The inquiries received cover a very large quantity in the aggregate, and if but half of them were to be placed, the complexion of the market would undergo a decided change. An attempt is being made to push prices up a trifle, but the effect is generally to turn buyers to brands which are still to be had at old prices. Both buyers and sellers are very conservative. The former are slow to make contracts ahead for any considerable time, and the latter insist that they prefer to sell only for reasonably easy delivery at present prices. The market is in a very sensitive condition just now and ready to respond to a decided influence in either direction. If the large purchases usually made at this time of the year should be speedily completed, the situation will be greatly improved for the furnace companies, and they will be able to maintain prices for the fall trade. Cash quotations are as follows, f.o.b. Chicago: Lake Superior Charcoal, all numbers, $19 @ $19.50; Alabama Car-Wheel, $26.25;

Southern Charcoal Foundry, No. 1, $18 @ $19; Jackson County Softeners, No. 1, $17.50 @ $18; Hocking Valley, Soft Foundry, No. 1, $16.50 @ $17.50; American Scotch (Blackband) No. 1, $18.25 @ $19; other Ohio Scotch Irons, No. 1, $17.50 @ $18; Lake Superior Coke, No. 1, $17 @ $17.50; No. 2, $16 @ $16.50; No. 3, $15 @ $15.50; Southern Coke, No. 2, $16.50 @ $17; No. 2½ and Open Bright, $16; No. 3, $15.50; No. 1 Mill, $15 @ $15.50.

Bar Iron.—Opportunities are now offered by the Agricultural Implement trade for the sale of large quantities of Bar Iron, but agents are considerably hampered by the backwardness of their mills to get into good working trim, or by the indifference with which they regard contracts for very long delivery at present prices. The general demand is not very heavy, and competition is quite strong for the orders for early delivery now coming forward. Common Iron is still quoted from mill at 1.65¢, half extras, f.o.b. Chicago, but this can be shaded on some sizes. The stores report a very steady demand from small consumers at 1.90¢ @ 2¢.

Structural Iron.—The country demand for Beams is now better than the city trade, as building seems to be much more active in the outlying towns. Some good orders have been placed for Bridge work. Store prices range from 2.40¢ to 2.70¢ for Angles; 2.60¢ to 2.90¢ for Tees; 3.80¢ for Beams and Channels. From mill Angles are quoted, f.o.b. Chicago, at 2.20¢; Universal Plates, 2.25¢; Tees, 2.45¢; Beams, 3.40¢

Plates, Tubes, &c.—The general demand for Plates has been very good, and plenty of orders are still in sight. Bids have been solicited for 1500 tons of Tank Steel for the West Side cable road. From store prices are as follows: Heavy Sheets, Nos. 10 to 14, 2.65¢; Tank Iron, 2.55¢; Tank Steel, 2.80¢; Shell Iron, 3¢; Shell Steel, 3.25¢; Flange Iron and Steel, 4¢; Fire-Box Steel, 4.75¢ @ 5.75¢; Boiler Rivets, 4¢ @ 4.25¢; Ulster Iron, 3.75¢; Boiler Tubes, 60 % and 10 % off on 2¼-inch and larger and 62½ % off on 2-inch and smaller.

Sheet Iron.—No. 27 Common Black is still quoted at 2.95¢, f.o.b. Chicago, in carload lots, but inquiries have not been so numerous the past week, although it is believed that a considerable percentage of the larger buyers have not yet contracted for their season's supply. Jobbers are quoting 3.10¢ @ 3.20¢ from store, according to quantity, for No. 27, but this has been shaded under special circumstances.

Galvanized Iron.—Manufacturers' agents report a slight hardening of prices under the continued good demand, but the jobbers are now less firm, as they are receiving stocks bought at concessions some time since. Quotations for small lots are nominally 60 % and 5 % off for Juniata, and 60 % and 10 % off for Charcoal.

Merchant Steel.—Some Plow manufacturers have begun to place orders for Syndicate Steel, but they strongly protest against the rate of 7¼¢ ₱ lb, f.o.b. Pittsburgh, which they insist is too high. The demand from the general trade has been light for several days. Quotations from store are as follows: Bessemer Bars, 2.30¢ @ 2.50¢; Tool Steel, 8½¢ @ 9½¢; Specials, 13¢ @ 25¢; Crucible Spring, 4.40¢; Open-Hearth Spring, 2.90¢; Open-Hearth Machinery, 2.75¢ @ 3¢; Crucible Sheet Steel, 7¢ @ 11¢.

Steel Rails.—The condition of this branch of trade shows no change, manufacturers anxiously awaiting a turn in the tide. Only small orders are being received, ranging from a few carloads to a few hundred tons, on which prices still range from $32 to $32.50.

Old Rails and Wheels.—Old Iron Rails are reported higher. A sale of 200 tons was made early in the week at $18.50, but later $19 was refused, railroad companies insisting that they were worth from $19.25 to $19.50. Old Car-Wheels are very quiet. They are probably worth about $18.50.

Scrap.—The supply is very abundant, but sellers are not so weak as they were, anticipating an early demand from the rolling mills now starting into operation again. An exception is found in the lowest grades of Scrap, which are to be had at slightly easier prices. Some sales of Wrought are reported, but the quantity was not large. Mixed Country Scrap is now quoted at $11 @ $11.50. Selling quotations for carefully selected are as follows, ₱ ton of 2000 lb: No. 1 Forge, or Railroad Shop, $17 @ $18; Track, $16.50; No. 1 Mill, $13; Light Wrought, $9; Horseshoes, $16.50; Axles, $22; Cast Machinery, $12.50 @ $13; Stove Plate, $9; Cast Borings, $8.25; Wrought Turnings, $10; Axle Turnings, $12; Coil Steel, $13.50; Leaf Steel, $14.50; Locomotive Tires, $15.

Hardware.—The demand for Shelf Hardware is unusually good for this time of the year. It very seldom happens that night work is necessary to dispose of a rush of orders in midsummer, yet that has recently been the experience of some of the leading houses in this city. While the demand is of a general character, all classes of goods moving very freely, an especially heavy trade is noted in Grain Cradles, caused by the difficulty encountered in using machinery in fields of grain beaten down by the severe storms. Carriage Bolts have now settled down to 75 % off, but no other changes in prices worthy of notice have been made. Collections are always light in the harvest season, but they are fully up to expectations. Heavy Hardware is moving a little more slowly, but a good demand is experienced from manufacturing consumers.

Nails.—Manufacturers' agents have made some good sales of Steel Nails to parties who believe they are a good purchase at the terms, although the consumption is very light at present and the demand does not warrant the laying in of large stocks. The price of large lots from factory is now quoted at $1.90 @ $1.92½, f.o.b. Chicago, but special terms are made on almost every sale, according to specifications, &c. Jobbers' quotations are $2.05 for small lots of Steel Nails, and $2.50 @ $2.60 for Wire Nails, but prices are weak under the slow demand and concessions are made when necessary.

Barb Wire.—The demand is very light. Manufacturers are piling up Wire in their warehouses and many of them are preparing to shut down on the 1st of August for repairs, the dullness of the trade being a strong inducement to the suspension of operations for a longer period than usual.

Pig Lead.—Quite a healthy consumptive demand is noted in this market. Sales reported for the week aggregate 700 tons at prices ranging between 3.80¢ and 3.85¢, closing with a feeling of slight weakness resulting from lower prices in Eastern markets.

Copper.—Buyers display much timidity in making contracts involving any considerable quantity of material, evidently fearing a collapse in prices by the culmination of the foreign speculative syndicate's plans. Negotiations of importance are pending, but prices are firmly maintained at former rates.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, July 23, 1888.

The prospect of good crops throughout our entire South was never better at this season of the year. Many of them are beyond any probable contingency. Should cotton bear out indications this year will be another one added to prosperous years of the South. Neither have the manufacturing interests anything to complain of. None of those that have been started on any thing like a sound basis have shown any backward movement, but, on the contrary, have been gaining in financial strength and in many cases have added largely to their capacity.

Pig Iron.—The status of the market of this article appears to remain about the same as last reported, and the general expression appears to indicate that there is a feeling that prices will go no lower. Among some large consumers there appears to be a desire to make contracts to extend through the balance of the year, but which most of the furnaces are disinclined to do. There has been no disposition on the part of buyers to ask for lower figures. They appear to be satisfied if they can purchase round lots at present prices. There is still a perceptible scarcity of good Foundry grades, and some of the stacks are not quoting to new customers, as their make is wholly absorbed by those who have been taking their output regularly. Foundries through the South are gradually increasing their consumption, which is getting to be a matter of considerable importance to some of the stacks that have been giving this market their special attention. Forge grades may be said to be in better demand, and for the past week or ten days there has been quite a spirited movement of these Irons. Upon the whole the outlook is a little improved since the last report.

Cleveland.

CLEVELAND, July 23, 1888.

Iron Ore.—All dealers in Bessemer Ores report the season's output nearly disposed of. Prices have slightly strengthened, a 50,000-ton lot of Menominee Bessemers having been sold during the week at $5, whereas the same Ore could have been bought three weeks ago for $4.75. The very best grades of Ore did not maintain their fixed prices, sales having been made at $5.75 for the most valuable Ores obtainable. Lake freights have also advanced, the rate from Ashland being $1.25; from Marquette, $1.15, and from Escanaba, 90¢. These changes are incidental to the close of every season's sales. Bessemer Hematites seem to have sold more freely than any other grade of Ore, dealers being quite unable to supply present demands. Gogebic Bessemers have sold with so much freedom during the past two weeks that there are really but small lots left for sale. The season's shipments from upper lake ports slightly exceed 1,525,000 tons, against 1,750,000 tons up to a corresponding period last year.

Pig Iron.—Buyers are purchasing liberally. Transact ons embrace considerable Iron for future delivery in round lots. Charcoal Irons have been in especial good demand during the past week. The inquiry for Bessemer Iron has been active and prices have been fully maintained. The following quotations are reported today:

No. 1 to 6 Lake Superior Charcoal	$20.50	@	$21.50
No. 1 Strong Foundry, Bessemer quality, ₱ ton	17.25	@	18.25
No. 1 Strong Foundry, ₱ ton	17.00	@	17.75
No. 2 Strong Foundry, ₱ ton	16.00	@	17.00
No. 1 American Scotch, ₱ ton	17.50	@	18.00
No. 2 American Scotch, ₱ ton	16.50	@	17.00
No. 1 Soft Silvery, ₱ ton	17.50	@	18.50
Mahoning and Shenango Valley Neutral Mill Irons, ₱ ton	....	@	14.75
Mahoning and Shenango Valley Red Short Mills, ₱ ton	....	@	15.25

Old Rails.—The sale of a small lot of Old Americans at $21.50 constitutes the week's business. Old Wheels are quoted nominally at $19.50, and there is still a demand for Selected Axles.

Nails.—Steel Wire Nails at $2.60 are still selling freely. Iron Nails are quoted at $1.90, and Steel Nails at $2.

Coke.—Heavy sales have been made during the past week at the rate of $1 ℔ ton at the ovens.

Cincinnati.

CINCINNATI, July 23, 1888.

Pig Iron.—There has been a more urgent demand for both Mill and Foundry grades, especially for long forward deliveries, but there has also been more buying for the near months. Furnaces, while indisposed to sell except at an advance, have taken some orders of moment at last week's figure, the deliveries of which embrace the rest of the current year. Rolling mills, now that they have settled their strife with the Ironworkers, have been in the market for large amounts, and there have been sales here of between 10,000 and 15,000 tons of Forge Iron. Stocks of Iron have continued to decline, and upon this both sellers and buyers base their opinions of improvement in the future. The new furnace blowing in, in the South, will probably increase the general output, as compared with the consumption, but little. The off grades of Mill Iron have been well cleaned up, and the market has improved correspondingly; in fact, the market for Mill Iron is now relatively in its normal condition. While the aggregate volume of business has continued to increase the individual sales have not been large. No. 2 Southern Coke Foundry Iron has sold at $15.50, and at the close furnaces are not ready sellers under $16; No. 2¼ Foundry has been sold at $15 @ $15.25. No. 2 Mill has been sold on the basis of $13.50, and No. 1 at $14.25, and there have been a few transactions within 25¢ of this rate. One thousand tons of Lake Superior Car-Wheel Iron sold at about $20.50 here. Prices current here, cash, f.o.b., are approximately as follows:

Hot-Blast Foundry.	
Southern Coke, No. 1	$16.50 @ $17.00
Southern Coke, No. 2	15.50 @ 16.00
Southern Coke, No. 3	15.00 @ 15.50
Ohio Soft Stone Coal, No. 1	17.00 @ 17.50
Ohio Soft Stone Coal, No. 2	15.25 @ 15.75
Mahoning and Shenango Valley	16.50 @ 17.00
Hanging Rock Charcoal, No. 1	20.50 @ 22.50
Hanging Rock Charcoal, No. 2	19.00 @ 21.00
Tennessee and Alabama Charcoal, No. 1	17.50 @ 18.00
Tennessee and Alabama Charcoal, No. 2	16.50 @ 17.50
Forge.	
Strong Neutral Coke	13.50 @ 14.00
Mottled Neutral Coke	12.50 @ 13.00
No. 1. Mill Coke	14.00 @ 14.50
No. 2 Mill Coke	13.50 @ .....
Car-Wheel and Malleable Irons.	
Southern Car-Wheel	20.00 @ 23.00
Hanging Rock, Cold Blast	22.00 @ 25.00
Lake Superior Car-Wheel and Malleable	20.50 @ 21.50

Manufactured Iron.—The manufacturers' Association have practically withdrawn from the contest with the Amalgated Association, and all those who have not signed the scale will probably do so during the present month, although several of the mills will hold out until the repairs have been fully completed. There has been a more active demand for manufactured Bar and Plate Iron at about rates current before the strike. Bar and Sheet Iron—Common Bar Iron, 1.90¢ @ 2¢; Charcoal Bar Iron, 2.90¢ @ 3¢; Sheet Iron, Boiled, Nos. 10 to 27, 2.50¢ @ 3.25¢; Sheet Iron, Charcoal, Nos. 15 to 25, 3½¢ @ 4½¢ ℔ lb.

Nails.—There has continued to be a fair jobbing demand for both Iron and Steel Nails, and moderate sales have been made from the mills at about 15¢ under the quoted jobbing prices, which are based upon 12d @ 40d, which sell at $2 ℔ keg, with 10¢ rebate in carload lots at mills; 50d @ 60d, 25¢; 10d, 10¢; 8d @ 9d, 25¢; 6d @ 7d, 40¢; 4d @ 5d, 60¢; 3d, $1, and 2d $1.50 per keg more. Steel Nails sell at $2 and Steel Wire Nails at $2.65 @ $2.75 ℔ keg.

Old Material.—There has been but little change in the market, and moderate sales of Old Rails have been made at $19.50 per ton and Old Wheels at $18.50 per ton spot cash at Cincinnati, or equivalent to such rates.

Louisville.

LOUISVILLE, KY., July 23, 1888.

Pig Iron.—Sales of Iron in lots of from 300 to 500 tons continue to be made at prices current last week. There is a decided feeling on the part of nearly all the buyers that bottom has been reached, and though it is not expected that much of an advance will take place, prices will probably advance from 25¢ to 50¢ a ton, and it is thought a good time to buy. The disposition on the part of furnacemen not to sell for long delivery is increasing, and the more conservative furnaces are offering Iron only for from 60 to 90 days. Sales of Southern Iron have been made East by a Louisville house during the last week at prices fully 50¢ a ton higher than the same would bring in the Louisville market, and it is evident that prices must readjust themselves in the West, or else Iron will be shipped East in large quantities. We think it looks more favorable than at any time this year for large sales, and at prices better than those recently current.

Southern Coke, No. 1 Foundry	$16.00 @ $17.00
" No. 2 "	15.00 @ 16.00
" No. 2½ "	14.50 @ 15.00
Hanging Rock Coke, No. 1 Foundry	16.50 @ 17.00
Hanging Rock Charcoal, No. 1 Foundry	20.25 @ 22.25
Southern Charcoal, No. 1 Foundry	17.25 @ 17.75
Silver Gray, different grades	13.25 @ 14.25
Southern Coke, No. 1 Mill, Neutral	12.75 @ 13.75
" No. 2 " "	12.25 @ 13.25
" No. 1 " Cold Short	12.25 @ 13.25
" Charcoal, No. 1 Mill	13.25 @ 14.75
White and Mottled, different grades	12.00 @ 12.50
Southern Car-Wheel, standard brands	21.50 @ 24.50
Southern Car-Wheel, other brands	18.50 @ 20.50
Hanging Rock, Cold Blast	22.50 @ 24.50
Hanging Rock, Warm Blast	18.50 @ 19.50

Pittsburgh.

Office of *The Iron Age*, 77 Fourth Ave., PITTSBURGH, July 23, 1888.

While the Iron lockout is virtually over, there is a great deal of dissatisfaction manifested on the part of manufacturers generally; they consider that they are not being treated fairly by the Amalgamated Association, in having to pay more than Eastern manufacturers, with whom they have to compete. A number of Iron firms, both here and elsewhere, have not yet signed the scale, nor is it likely that they will until they are ready to start up their mills, in regard to which they do not appear to be in any especial hurry. In some respects, however, the outlook is favorable. Crop reports are generally encouraging. This, to some extent, will offset the discouraging effects of the political excitement of the Presidential campaign as well as the tariff agitation.

Pig Iron.—There has been a largely increased volume of business during the past week, consequent upon the starting up of a number of the mills, and the market, as might be expected, has stiffened up. Consumers, who two weeks ago would not think of buying, are now at least willing to talk on the subject; some of them have bought pretty freely already, and others are anxious to do so. They all made it a point to close down June 30 with as little stock as possible, and, being apprehensive of an advance, it is not strange that they are wanting to buy both for present and future delivery; moreover, there have been some sales on speculation, and it is evident that those of a speculative turn are of the opinion that prices will go higher, otherwise they would not buy. However, there is not likely to be much of a boom, as there is nothing in the market for finished stuff to warrant it; even now it is claimed that the raw material is bringing all it is worth to consumers, when the price of Finished Iron is taken into consideration, and if this is the case no material advance in the former can reasonably be expected, although there are those who argue that it will go considerably higher, and that it will take Finished Iron up with it. Some of the sales reported show an advance of 25¢ ℔ ton, and some furnacemen are refusing to make additional sales at rates now current. The sales reported during the week under review exceed 20,000 tons, the great proportion of it Gray Forge, chiefly at $14.25, cash, with some few sales at $14.40 @ $14.50. Bessemer may be quoted at $17.50 @ $17.75, four months, with sales of several lots reported at $17.25 @ $17.30, cash. We quote prices as follows:

Neutral Gray Forge	$14.00 @ $14.75,	4 mos.
All Ore Mill	15.50 @ 16.00,	"
No. 1 Foundry	16.75 @ 17.00,	"
No. 2 Foundry	15.75 @ 16.00,	"
No. 3 Foundry	15.00 @ 15.25,	"
Charcoal Foundry	22.00 @ 24.00,	"
Cold Blast Charcoal	25.00 @ 28.00,	"
Bessemer	17.50 @ 17.75,	"

Muck Bar.—There is more doing, but prices remain unchanged. We can report a sale of 1000 tons at $26, cash, and 750 tons at $26.75, cash, the latter delivered at works of the buyer. The demand has improved considerably during the past week.

Manufactured Iron.—Now that the strike is virtually over, and the mills are resuming business, there is no longer any apprehension of a scarcity of stock, and the tone of the market, by reason of an increased production, is easier. Some firms have not yet signed the scale, and their mills are still standing idle, but all orders are now readily accepted, and buyers have no longer any apprehension about getting their wants promptly supplied, and that, too, within the range of our quotations. We continue to quote Bars at 1.70¢ @ 1.80¢; Plate Iron, 2.15¢ @ 2.20¢; No. 24 Sheet, 2.70¢ @ 2.80¢, all 60 days, with usual discount of 2 % off for cash.

Nails.—There is no improvement to note in the Cut-Nail trade. Demand continues light for the season and prices continue unsettled and unsatisfactory. Pittsburgh manufacturers are still holding for card rate, $1.90, 60 days, 2 per cent. off for cash, in car lots, but they are getting very few orders. It is said that some manufacturers not very far west of Pittsburgh are selling at $1.75 @ $1.80; hence there is not much chance for the Pittsburgher unless he meets the price which he is refusing, claiming that it is better to do nothing than to work for nothing.

Wrought-Iron Pipe.—Buyers continue to have it pretty much their own way and manufacturers continue to report the market just about as mean as it can be. There is nothing like the business there was a year ago, but there is a possibility that the fall trade may pan out better than most people expect, as there is often a change for the better unexpectedly. That there is so little doing is accounted for by the fact that natural gas and oil development is very light as compared with what it was a year ago, while the capacity for making Iron Pipe has been considerably increased, several new mills having been completed within that time. It is impossible to quote prices as long as the market remains in its present go-as-you-please condition—every fellow for himself. Some manufacturers are indifferent about getting business, claiming that there is nothing in it at ruling prices.

Old Rails.—There has been very little business the past week, but, with the mills starting up, an increased demand s

looked for. A sale was reported two weeks ago at $20.75, and there are buyers now at $20.50, cash, but no sellers. It is doubtful whether a seller for American Tees could be found under $21, as the supply is small and there are but few offering. The railroads centering here have but few for sale, and the same appears to be the case elsewhere.

Steel Rails—Are still quoted at $31 @ $31.50, cash, delivered on cars at mill here, but it is intimated that for a desirable order the inside quotation would be shaded. The Edgar Thomson Works are busy, working up well to full capacity, but it is chiefly on orders booked some time ago.

Billets, &c.—There is a continued fair demand for Bessemer Steel Billets, which we continue to quote at $28 @ $28.50, cash, as to size, quality, delivery, &c. Nail Slabs remain unchanged at $27.75 @ $28, with but little inquiry. Sale 500 tons Domestic Bloom Ends at $17.50, cash, and 250 tons Domestic Crops at $17.25.

Railway Track Supplies.—Trade continues light, while prices remain about as last quoted: Spikes, $2 @ $2.10, 30 days, delivered; Splice Bars, 1.75¢ @ 1.85¢; Track Bolts, 2.85¢ with square, and 2.95¢ with hexagon nuts. It may be that a desirable order would be placed below our quotations.

Merchant Steel.—There is no improvement in the demand and no change in prices. Best brands of Tool Steel, 8½¢; Crucible Spring Steel, 4½¢; Crucible Machinery Steel, 5¢; Open-Hearth do., 2¾¢.

Old Material.—We can report a sale of No. 1 (railway shop) Scrap, at $19, net ton; Old Car Axles are quoted at $23 @ $24; Cast Scrap, $15 @ $15.50, gross; Cast Borings, $11.50 @ $12; sales 200 tons Scrap Steel, at $17.

New York.

Office of *The Iron Age*, 66 and 68 Duane street. } NEW YORK, July 25, 1888. }

American Pig.—There is little change to be noticed in the Pig-Iron market, which continues very dull with no new business offering. It is remarked, however, that those who purchased early in the year for future delivery are taking Iron more freely now than heretofore. This delayed delivery of Foundry Pig is due to the fact that the foundries have been using considerable quantities of Southern Iron and have consequently put off delivery of Northern brands. The Lehigh furnaces are carrying very heavy stocks, but there is no weakening in price. Southern Iron may be quoted $17.50 @ $18 for No. 1, and $16 for No. 2, delivered in New York. We quote standard and choice Northern Irons, tide-water delivery, as follows: $18 @ $18.50 for No. 1 Foundry, $16.50 @ $17.50 for No. 2 Foundry and $14.75 @ $16 for Gray Forge.

Scotch Iron.—The Scotch-Pig market is quiet and dull, and the slight advance in Glasgow is not felt here. We quote: Coltness, $19.50 @ $19.75; Summerlee, $19.25 @ $19.50; Langloan, $19 @ $19.50, and Dalmellington, $18 @ $18.50 for large to small lots.

Bar Iron.—The volume of trade is slightly improved, quotations for carload lots, half extras, on dock, being 1.60¢ @ 1.65¢ for Common Iron, 1.7¢ for Medium, and 1.8¢ for Refined, with special qualities selling up as high as 2¢ @ 2¼¢.

Plates.—We quote: Tank, 1.9¢ @ 2¢; Shell, 2.15¢ @ 2.30¢; Steel Tank, 2.4¢ @ 2.5¢; Shell, 2.15¢ @ 2.25¢; Flange, 2.6¢ @ 2.75¢, and Fire-Box, 3¢ @ 3.25¢.

Structural Iron.—We quote: Bridge Plates, 1.9¢ @ 2¢; Universal Mill Plates, 2¢; Angles, 2¢ @ 2.2¢; Tees, 2.5¢ @ 2.7¢, and Channels and Beams, 3.3¢, on dock.

Steel Rails.—There is absolutely nothing doing in Steel Rails. There are a number of inquiries in the market, but no business is done. The market is undoubtedly weak, but, as there are no sales, prices remain unchanged. On an exceptionally good order current quotation would very likely be shaded, but, as it is, the price remains nominally $30 for moderate lots at Eastern mill. The passage of the Mills bill through the House has perhaps influenced the views of buyers somewhat, but otherwise has not affected the market.

Old Rails.—There is nothing new to report, $20 being bid here, but with only sales of small lots at this figure.

Scrap.—The market is dull at unchanged prices. We note a sale of 200 tons American No. 1 Wrought Foundry Scrap at $22, but what little trade there is is mostly confined to small lots. Foreign Scrap is quoted at $19 @ $20.

Fastenings.—The market continues quiet, with Spikes at $2 @ $2.05 delivered and Angle Bars at 1.85¢ @ 1.9¢ delivered.

Billets.—There is nothing new to report in this market, quotations remaining unchanged. Sailer shipments are $28.50 @ $29, ex-ship, and steamer $30 50, ex-ship.

Wire Rods.—Very little business is being done in Wire Rods, no sales having been reported during the week under review. Freights are still high, and no reduction is anticipated before the fall. We continue to quote $39.75 @ $40 for future and $40.25 @ $40.50 for near-by delivery.

Coal Market.

Anthracite Coal is moving off freely at prices agreed upon prior to the recent advance, but the wholesale jobbers are as yet unable to report sales in any amount at prices up to the new schedule. The advance had a decided effect in hastening the receipt of orders, and solicitude is shown on the part of buyers to expedite shipments while railroad tolls remain at the rates now in force. At the meeting of representatives of the Anthracite Coal roads, held in New York a week ago to consider the subject, it was decided to defer the proposed advance of tolls until at least August 15, when it is said a renewed effort will be made to add 10¢ @ 25¢ per ton. On this point the Philadelphia *Record* remarks: "The Reading and Jersey Central Roads were in favor of the advance, but the objections of the Lehigh Valley, Lackawanna and Hudson Companies, reenforced by the Pennsylvania, decided against the motion, and the rates will be maintained until probably September 1. Tolls are now higher than they have been at the corresponding period for many previous years, and only a fraction lower than the rates charged during last winter." Complaint is made of delay in loading vessels at shipping ports; nevertheless shipments both East and West have been unusually active from the principal points. The facilities for transportation from the mines are also spoken of as inadequate. Respecting deliveries, the Philadelphia *Ledger* says: "The Reading Company report that their orders for Coal already booked will more than cover their entire output for this month, and that no orders will be filled after the 31st inst., excepting at whatever prices may be ruling on and after the 1st prox." The Pennsylvania Railroad Company complain that they are receiving from the Reading scarcely half the amount of Coal that was agreed upon. The Pennsylvania last week carried 218,000 tons over their lines east of Pittsburgh. The Reading shipped during the week 35,000 tons to Port Richmond and 7000 tons to Elizabethport. Philadelphia is quoting freights 90¢ @ $1.05 and discharge to Boston; New York, 80¢ @ 85¢. Quotations are as follows: Wyoming Free Burning, f.o.b. at South Amboy and Weehawken, Broken or Grate, $3.85; Egg, $4.15; Stove and Chestnut, $4.50; Reading Hard White Ash, Chestnut, $4.40; Stove, $4.50; Egg, $4.25, and Broken, $4.10. The small steam sizes can be bought as low as $2.40, and Buckwheat, $2 @ $2.10 f.o.b.

The output of Anthracite Coal is in larger volume from week to week, in anticipation of a more active demand. For the week ending July 21 the total production was 877,285 tons, as compared with 787,704 tons the previous week, and as against 664,000 tons for the corresponding week last year. Since January 1 the aggregate is 18,784,381 tons, an increase of 147,000 tons over the corresponding period in 1887. Both the Schuylkill and Lehigh regions were more active last week, but the Wyoming district produced much less.

The Bituminuous trade is mainly confined to deliveries on contract. Prices are irregular and are quoted $3 @ $3.25 alongside.

The Reading Company will build extensive Coal docks at Buffalo, in combination with the Vanderbilt interests, the Lehigh Valley's terminals at that point being insufficient for both companies.

Metal Market.

Copper.—During the week spot Chili Bars opened in London at £78. 15/, but subsequently improved to £79. 10/, at which they closed, while futures remained unaltered £78. Best Selected gave way from £76. 10/ to £75. 10. Trading in our own market has been restricted to preparations for the month's settlement, with the tendency slightly a hardening one. Sales did not exceed 600,000 lb in the aggregate; spot at 16.75¢; July, 16.80¢ @ 16.85¢; August, 16.65¢; September, 16.55¢; October and November, 16.50¢, and December, 16.35¢. The closing prices were 16.75¢ bid and 16.85¢ asked. Rio Tinto shares rose on the Paris Stock Exchange 41 francs during last week.

Tin.—London opened at £87. 5/, spot, and £87. 15/, futures, rising gradually to £88. 12/6 and £89. 5/, respectively, but giving way this morning to £87. 12/6 and £88. The market over there has been discounting the anticipated favorable statistical statement that is to appear at the close of the month, and is, moreover, swayed by the contending manipulators. Our own market followed suit steadily, spot rising from 19.40¢ to 20.25¢, July bringing 20.30¢ toward the close yesterday; August, 19.60¢, and October, 19.50¢. On the Metal Exchange, on first call, 10 tons August Tin brought 19.10¢; 10 ditto, 19¢, and 10 September, 18.80¢, the market being weakened by the decline in London above noted. At the close 19¢ was bid and 20.25¢ asked *Tin Plates.*—The stocks are very light; the demand has been fair, but not heavy; prices remain unchanged, with a few exceptions, owing to extreme scarcity, such as the higher grades of Coke Tins and some sizes of Stamping Plates. We quote at the close, large lines, on the spot: Siemens-Martin Steel, Charcoal finish, $4.85 @ $5.25; ditto Coke finish, $4.75; Ternes, $4.30 @ $4.40; Bessemer Cokes, $4.45 @ $4.60, and Wasters, $4.20 @ $4.25. Coke Tins are selling at 13/ in Liverpool, for prompt delivery. This is an advance of 3d. owing to the higher price of Pig Iron.

Lead.—There were sold during the week in the open market some 500 tons Common Domestic Lead to consumers at $3.87½ @ $3.90, while at St. Louis the

market remains steady at $3.80 @ $3.85. At the Metal Exchange 500 tons changed hands, with a downward tendency, spot ranging between $3.85 and $3.90, July selling at $3.90, August at $3.90 @ $3.92½, and September at $3.90. The closing prices were 3.85¢ bid and 3.92½¢ asked. In London Soft Spanish declined from £13. 5/ to £13.2/6, and English Pig from £13. 15/ to £13. 7/6. The London *Mining Journal* of July 14, alluding to the Paris meeting of European Lead producers recently held for the purpose of forming a syndicate to improve the position over there, remarks: "The constitution and surroundings of the Lead market are altogether unfavorable to such a combination. Not only has the Spanish production of Lead increased of late years, but that of America, it is computed, will this year be quite up to the average, the opening up of the mineral resources of Idaho and Montana, in all probability, more than compensating for the falling off in the productiveness of the Leadville carbonate deposits, which for years had been the bugbear of the Lead market. The production of Lead in all countries—and more especially in America—is not altogether dependent upon the price of the metal itself, a large quantity being produced from the smelting of argentiferous and auriferious ores, the Lead in which would not pay to extract in the absence of the precious metals, and thus large quantities are annually put on the market almost as a by-product. The position of the Lead market is not favorable to concerted action among producers; at the same time there is a margin for improvement in price without jeopardising the market by induced heavy deliveries."

Spelter.—A moderate trade has been done at firm rates for Common Domestic, which remains 4½¢, while Silesian is worth 5¢ @ 5¼¢, as to brand. In London Silesian has declined during the week from £16. 7/6 to £16. 2/6. The London *Mining Journal* of July 14 reviews the Spelter situation at some length, as follows: "The depression in the Spelter market appears to have arisen from a variety of causes, chief among which is undoubtedly the stagnation in the Copper market, which has directly influenced the Brass trade and those of kindred alloys of Copper and Zinc in this country. The sudden advance in the price of Spelter also disadvantageously influenced the consumption of Zinc-White produced at the Silesian, Rhenish and Belgian Zinc works, and to such an extent that certain factories ceased operation altogether. As a consequence, abnormal quantities of Silesian Spelter were thrown on the English market from the stock which had accumulated there, and also from Austria, where large quantities had been stored as a precautionary measure taken on the spreading of a report last year that that country was about to impose a new import duty. These supplies, however, appear now to be absorbed, and the price has risen on the relaxation of sale pressure. Another influence on the market may have been the knowledge that the price had receded to within dangerous proximity of the limit fixed by the Belgian and Rhenish smelters at the beginning of last year, when it was proposed to form a syndicate in co-operation with a well-known English firm for the withdrawal from the market of 10 % of the production, as reported in the *Mining Journal* of the 17th September last. Apart from this, however, there would appear to be every justification for the improvement in the Spelter market. The Galvanizing trade is in a very healthy state, and has developed to an unprecedented extent during the past two or three years. On the other hand, the production of Spelter has fallen off since 1885 from all sources of supply, excluding America, where the make is almost entirely absorbed in home industries, and does not affect the European market. The European supply, however, appears to be still too large to maintain the high price which ruled a few months since. But the statistical position of the market equally appears to warrant an advance on the present price. The best interest of all will probably be found in the happy medium somewhere between current quotation and the highest point reached."

Antimony.—Nothing of special interest has occurred; the local demand is moderate but steady, and prices have been sustained in a jobbing way at 13½¢ Cookson and 10¢ Hallett, the latter remaining £39 in London.

New York Metal Exchange.

The following sales are reported:

THURSDAY, JULY 19.

25,000 lb Lake Copper, July	16.75¢
16 tons Lead, September, seller's right to double	3.95¢
16 tons Lead, September, seller's right to double	3.97½¢
16 tons Lead, spot	3.87½¢

FRIDAY, JULY 20.

25,000 lb Lake Copper, November	16.50¢
16 tons Lead, spot	3.85¢
66 tons Lead, July	3.87½¢
200 tons Lead, September	3.90¢
50 tons Lead, July	3.85¢
20 tons Tin, August	19.50¢
20 tons Tin, Otober	19.50¢
45 tons Tin, October	19.45¢

MONDAY, July 23.

250,000 lb Lake Copper, spot	16.75¢
50,000 lb Lake Copper, July	16.80¢
16 tons Lead, spot	3.90¢
50 tons Lead, August	3.92½¢

TUESDAY, July 24.

175,000 lb Lake Copper, July	16.85¢
75,000 lb Lake Copper, July	16.80¢
10 tons Tin, August	19.60¢
64 tons Lead, August	3.92½¢

WEDNESDAY, July 25.

10 tons Tin, August	19.10¢
10 tons Tin, August	19.00¢
10 tons Tin, September	18.80¢
50 tons Lead, September	3.92½¢
16 tons Lead, August, seller's right to double	3.90¢

Financial.

The general tenor of trade accounts is of a hopeful character, despite the usual summer dullness expected at this season. Perhaps, in surveying the actual situation, the possibility of a general strike on the Northwestern railroads is the most disquieting feature. The radicals in that section would doubtless invite an extreme resort, but it is hoped wiser counsels will prevail. The outlook among the iron-workers is decidedly better. Benjamin G. Clarke, president of the Thomas Iron Company, is reported as saying: "We have all the business we can attend to from now until November. Daylight is appearing, and both steel and iron are firmer and in better demand than they have been." The passage of the Mills bill in the House is another factor having a direct bearing on this important interest, respecting which further developments are awaited. New York dry goods jobbers report a trade satisfactory for this season, with a good representation from interior and Western markets. The feeling of increased confidence is especially due to excellent crop prospects in this country, coupled with increasing indications of a shortage in Europe. Railway warfare continues. The Nebraska rates took effect on Monday, and are as follows: Classes 1, 2, 3, 4 and 5, new rate, 52, 44½, 34½, 26, 20½; old rate, 52, 45, 40, 25, 35 respectively. For 200 miles, classes 1, 2, 3, 4 and 5, new rate, 73, 63, 48½, 46½, 29½; old rate, 73, 65, 58, 46, 41, respectively. The greater proportion of the business is in the third, fourth and fifth classes. The Nebraska railroads ask for another conference with the commissioners to revise rates. The Illinois Central has withdrawn its high rates in Mississippi and adopted the lower rates of the commissioners. The new tariff sheet in Colorado likewise took effect on Monday.

The general markets are quiet, excepting sugar, which is advancing.

The rate on zinc was reduced by the Eastern roads to 17¢ between Chicago and New York, to correspond with the rates on pig lead and spelter.

The total clearings of 38 cities for the week ended July 21 were $943,772,361, against $359,616,605 last year, an increase of 10.3 %. Outside of New York the increase was 5.5 %.

The Stock Exchange markets have been dull and irregular, though generally strong. At the beginning of the week in the foreign business a feature was an active demand for American bonds, particularly from Berlin. On Friday the denial of the report that the American cable had been bought by Mr. Gould caused a partial fall in Western Union. At a later hour buying was stimulated by the news that the cable rates would be advanced to 25¢ per word on or about August 1. On Saturday Chicago advices concerning the railroad situation were unfavorable, reporting fresh cuts in passenger and freight rates. Neither this news nor the loss in the bank reserve, however, had any influence upon prices. On Saturday there was an advance, based on the Government crop reports, and an improved demand for coal was a pretext for advancing Reading and other coal shares. As the Week closes more strength is developed.

United States bonds are quoted as follows:

U. S. 4½s, 1891, registered	108⅜
U. S. 4½s, 1891, coupon	107⅜
U. S. 4s, 1907, registered	127¼
U. S. 4s, 1907, coupon	127¼
U. S. currency 6s	119½

Purchase of United States bonds under circular of April 17: Amount purchased, 4s, $18,741,500; 4½s, $8,567,600. Total, $27,309,100. Cost of 4s, $23,802,333.70; of 4½s, $9,226,298.70. Total, $33,028,-634.40.

The weekly bank statement showed a decrease in reserve above the 25 % legal requirements of $1,294,000. The excess of reserve is thus decreased to $26,440,400. The latter amount is, however, several times in excess of the reserve at the corresponding time last year. Specie showed a decrease of $2,218,800. In loans there was very little change. The demand for money has been rather more active, with little change in the rates. Local institutions are not disposed to increase their discount lines in prospect of finding a better use for their funds at a later date, but outside money is plenty for temporary investment. We quote 60 @ 90 days' indorsed paper 4 @ 4½ %; longer dates, 5½ @ 5¾ %. There was also some hardening of rates in the West. Surprise was occasioned by the failure of the old dry goods firm, Levi M. Bates & Co., who confessed judgments to the amount of $126,264. The liabilities are reported to be about $250,000, an amount probably not exceeding the actual assets. Mr. Bates lost heavily by a Detroit failure and business of late has not been profitably conducted. Wm. T. Coleman & Co., of San Francisco, propose to settle with their creditors at 40 cents on the dollar. It is now believed that the creditors of James D. Fish, formerly president of the Marine Bank, will receive their dues in full, the court having decided that certain real estate in this city is available for this purpose. In the United States Senate the bill appropriating $1,000,000 to reimburse the depositors of the Freedmen's Saving and Trust Company for losses incurred by its failure was passed without a division. The $700,000 in securities which were taken from the Union Bank, of Providence, by Teller Pitcher, now under arrest in Montreal, were recovered intact.

Sterling exchange is heavy; posted rates are $4.87½ @ $4.89½. The London *Economist* of July 14th says: "Gold is being withdrawn from the bank for export, and further amounts are, it is understood, to be taken for South America; and capital is being steadily, if slowly, absorbed in connection with the multitude of new undertakings that are being launched. All these are influences that work in the direction of dearer money."

The imports of merchandise at this port during the week were valued at $8,305,000, of which $3,000,000 represents dry goods. Since January 1 the total is $266,870,000, as compared with $262,309,000 for the corresponding period last year, and $242,426,000 in 1886. The exports for the week amounted to $6,289,265.

Imports.

The imports of Iron and Steel, Hardware, &c., at this port from July 14 to July 20, inclusive, and from January 1 to July 20, inclusive, were as follows:

Iron and Steel.

	July 14 to July 20. Tons.	Jan. 1 to July 20. Tons.
Pig Iron: Naylor & Co.	969	5,244
N. S. Bartlett	200	3,300
Crocker Bros.	200	6,200
G. W. Stetson & Co.	100	11,100
Spiegeleisen: Dana & Co.	200	301
Crocker Bros.	193	1,857
Steel: J. Abbott & Co	61	324
W. F. Wagner	52	925
Pierson & Co.	21	47
C. F. Boker	16	132¾
N. Cohn & Co.	15	167
F. S. Pilditch	6	271
H. W. Belcher	6	11
Chas. Hugill	4	164½
Steel Rods: Naylor & Co.	397	11,708
J. Abbott & Co.	206	3,715
R. H. Wolff & Co.	88	2,483
J. A. Roebling's Sons	50	1,205
Dana & Co.	21	1,152
Cary & Moen	20	579
Montgomery & Co.	5	65
Iron: G. Lundberg	100	250
Ogden & Wallace	4	4
Steel Billets: J. Abbott & Co.	103	1,345
Steel Sheets: A. Milne & Co.	21	41
Ogden & Wallace	21	137
Naylor & Co.	11	419
R. F. Downing & Co.	3	3
Steel Plates: Naylor & Co.	4	171
Steel Forgings: Thos. Prosser & Son	72	2,794½
Steel Strips: Naylor & Co.	11	37½
Steel Tubes: J. S. Leng's Sons	4	39
Steel Wire: J. A. Roebling's Sons	38	153
Old Spring Steel: A. Milne & Co.	105	105
Rivet Rods: J. Abbott & Co.	150	2,227
J. A. Roebling's Sons	127	732
G. Lundberg	68	279
Page, Newell & Co.	40	40
R. F. Downing & Co.	36	62
Cooper, H. & Co.	1	1
Iron Rods: Naylor & Co.	175	275
Iron Blooms: A. Milne & Co.	101	101
Sheet Iron: T. B. Coddington & Co.	26	814
Iron Rivet Rods: J. Abbott & Co.	308	2,212
Iron Beams: R. F. Downing & Co.	25	194
Swedish Wire Rods: A. Heyn.	103	280
Naylor & Co	50	50
Ferromanganese: C. L. Perkins	1,000	3,700
Charcoal Iron: C. S. Mersick & Co.	60	70
Cotton Ties: J. S. Leng's Sons	110	110
Iron Wheels: R. F. Downing & Co.	6	6

Tin Plates.

	Boxes.	Boxes.
Phelps, Dodge & Co.	16,537	290,296
D. Van Dusen & Co.	6,733	149,582
T. B. Coddington & Co.	5,276	93,869
Bruce & Cook	3,234	57,538
A. A. Thomsen & Co.	2,875	61,211
N. L. Cort & Co.	2,154	60,250
G. B. Morewood & Co.	2,000	24,439
H. R. Demilt & Co.	1,634	10,098
Pratt Mfg. Co.	1,131	96,368
R. Crooks & Co	1,096	38,474
S. Shepard & Co.	943	12,227
Corbiere, Fellows & Co.	807	2,139
Central Stamping Co.	794	17,520
Wolff & Roesing	786	18,674
Merchant & Co.	594	9,410
Lombard, Ayres & Co.	500	6,028
E. S Wheeler & Co.	964	1,933
Bridge & Beach Mfg. Co.	339	339
A. M. Underhill	21	21

Metals.

	Pounds.	Pounds.
Tin: Muller, Schall & Co.	437,236	6,362,675
Knauth, N. & Kuhne	20,836	43,236
Nickel: McCoy & Sanders.	10,150	122,490
Sheet Zinc: Naylor & Co.	112,014	112,014
	Casks.	Casks.
Antimony: Hendricks Bros.	34	136
	Tons.	Tons.
Zinc: Naylor & Co.	50	50

Hardware, Machinery, &c.

American Metal Company, Mineral, sacks, 525
Baldwin Bro.'s & Co., Gun Barrels, cs., 8
Bur, Julius, Ironwork, cse., 1
Boker, Hermann & Co., Anvils, 136; Mdse., cs., 28; Arms, cs., 50; Chains, cks., 23
Cobiere, Fellows & Sparks, Mach'y, crates, 27; do., cs., 4
Codd, Hiram, Mdse., cs., 22
Downing, R. F. & Co., Chains, cks., 19
Davis, Moses, Arms., cs. 6
Field, Alfred & Co., Mdse, cs., 3
Godfrey, Chas. J., Arms, cs, 5
Graef Cutlery Company, Cutlery, cs., 6
Hammacher, Schlemmer & Co., Chains, box, 1; Mdse., cs., 69
Hartley & Graham, Arms, cs., 54; Gun Barrels, cs., 5
Knauth, Nachod & Co., Cylinder, pcs., 22
Lamarche's Sons, Nails., cks., 25
Merchants' Disp. Company, Mach'y, cs., 37; Ironware, cse., 1
Morris, L. W. & Son, Razor Hones, cs., 18; Tin Labels, box, 1
Moss Engraving Company, Mdse., cs., 2
Oastler, W. C., Mach'y, pcs., 10
Sanderson & Son, Mach'y, cs., 3; do., pcs., 11
Schoverling, A., Arms, cs., 46
Shoverling, Daly & Gales, Arms, cs., 19
Stillman, O. B., Mach'y, cs. 2
Scheldon, G. W. & Co., Hdw., cs., 16
Taylor, Thos., Mdse., cs., 5
Taylor, Jas., Mach'y, cs., 62
Whitney, Pousland & Co., Mach'y, pgs., 3
Wiebusch & Hilger, Lim., Arms, cs, 14; Mdse., cs., 28; Chains, cks., 25
Windmuller & Roelker, Arms, cs., 3
Witte, John G. & Bro., Cutlery, cs., 4
Order: Stoves, cs., 4; Mach'y, pcs., 2

Exports of Metals.

	July 14. to July 20. Pounds.	Jan. 1. to July 20. Pounds.
Copper: J. Abbott & Co.	464,115	6,703,045
Lewisohn Bros.	.....	3,879,022
F. A. Lomai	.....	2,581,293
American Metal Company	250,519	4,692,972
G. H. Nichols	.....	223,939
J. Bruce Ismay	.....	112,000
S. Mendel	.....	560,000
Ledoux & Co.	.....	110,276
Muller, Schall & Co.	.....	430,000
Copper Queen Con. M. Company	.....	224,034
J. Kennedy, Tod & Co.	.....	112,026
H. Becker & Co.	.....	1,250
Orford C. & S. Rfg. Company	.....	224,881
Robt. M. Thompson	.....	125,000
Thos. J. Pope, Sons & Co.	.....	765,880
J. Parsons & Co.	.....	206,250
Bridgeport Copper Company	.....	112,000
C. Herold	.....	250,000
Phelps Bros.	.....	6,250
R. W. Jones	.....	189,984
Copper Matte: Williams & Terhune	1,400,550	32,395,200
Lewisohn Bros.	.....	3,021,610
American Metal Company	224,636	1,497,199
J. Abbott & Co.	.....	295,000
C. Ledoux & Co.	.....	485,800
F. W. J. Hurst	.....	184,288
G. H. Nichols	.....	722,777
H. T. Nichols & Co.	.....	180,995
Old Copper: Burgass & Co.	6,760	489,774

Wages in Steel Works.

The Pittsburgh *Despatch* has published the following tabular comparison of the wages paid in the steel works at Braddock and at Chicago:

Blast Furnace Department. Furnace A, Braddock. SLIDING SCALE. Turn 12 hours.		Furnace No. 2, Union Steel Company, Chicago. STANDARD SCALE.	
Keeper	$2.23	$3.25	
First helper	1.70	2.60	
Second helper	1.60	2.45	
No third helper.	—	2.45	th'd h'lp'r.
Stoveman	1.70	2.50	
Top filler	1.61	2.50	
Filler	1.51	2.25	
Converter Department.			
First converter.	$1.33 ℔ 100 tons.	$1.80	℔ 100 tons.
First pitman	1.32 " "	1.80	" "
First ladleman	.99 " "	1.80	" "
Blower	1.08 " "	2.34	" "
Bottom builder.	1.06 " "	.89	tonnage of 2 turns.
Spiegel melter	1.33 " "	1.80	℔ 100 tons.
Blooming Department.			
Heater	—	$5.00	℔ 100 tons.
Heater's help'r.	$1.32 ℔ 100 tons.	3.00	" "
Assist. roller	1.09 " "	1.53	" "
Leverm'n (sh'rs)	.63 " "	.99	" "
Rail Mill Department.			
Roller	—	$210.00	℔ month.
Leverman	$3.10 turn 12 h.	3.72	turn 12 h.
Spell leverman.	2.85 " "	3.72	" "
First engineer	2.38 " "	3.50	" "
Water tender	2.00 " "	2.90	" "
Straightener	1.43 100 tons on entire output of mill.	9.00	100 tons on individual work.

Engineer and Boiler Department.

	Per turn of 12 hours.	
Water tender.	$1.95	$2.90
Asst. w. tender.	1.43	2.50
Ingot loco. eng.	1.72	2.50
1st blowing eng.	2.38	3.50
2d blowing eng.	1.90	3.25
3d blowing eng.	1.57	3.00
Cupola bl'g eng.	1.52	2.75
Crusher engin'r.	1.43	2.75
Sp'gel ladle eng.	1.19	2.50
Skull br'k'r eng.	.91	2.00
Boiler tender.	1.57	2.75
Bloom train en.	2.09	3.00

The Edgar Thomson figures are from the sliding scale, on the basis of $30 at mill. The Chicago figures are said to be from the official scales of the Bridgeport Mill, and the North Chicago Rolling Mill Company's mill.

WESTERN IRON MILLS.

The Lockout Ended.

The Lockout in the Western iron mills, which has been in progress since the beginning of the present month, has been definitely settled by the manufacturers agreeing to sign the scale and resume work as soon as repairs are completed. A meeting of the Manufacturers' Association of Iron, Steel and Nails was held in Pittsburgh on Wednesday, the 18th inst., with President A. F. Keating in the chair. There was a large attendance of manufacturers as it was known that important business would be brought before the meeting. After a somewhat lengthy session, the following resolution was unanimously adopted: "*Resolved*, That the Conference Committee of manufacturers be dissolved, and that all members of the Association of Manufacturers of Iron, Steel and Nails who have not signed the Amalgamation Association scale be absolved from all pledges, written or verbal, and are authorized to act in their individual capacity regarding the starting of their works." This action dissolves the conference committee, and, of course, puts an end to the lockout. In addition to this the manufacturers' association is practically dissolved, and unless a reorganization is effected there will be no conference committee appointed by the manufacturers to meet a similar committee from the Amalgamated Association, when the present scale expires next year. Each firm will settle the scale question individually and on its own responsibility. At this time it is of course impossible to state what the manufacturers will do before another year passes, but it is the impression that a mistake has been made in allowing the association to go to pieces. It has been pointed out that in 1882, when the great strike took place, the manufacturers were strongly united and succeeded in administering a defeat to the Amalgamated Association, and it is claimed that if the manufacturers had been as well united this year as they were then they would have been successful and would have compelled the Amalgamated Association officers to recognize and sign their scale. It is thought that before the time arrives for the annual conference next year the manufacturers will have realized that they have made a mistake and that their organization, which at present is about dissolved, will be reorganized on a stronger basis than it ever has been, and that they will be prepared to meet the Amalgamated Conference Committee as a united body. The dissolution of the Manufacturers' Association of Iron, Steel and Nails in no way affects the standing of the Western Iron Association as has been erroneously stated. The two organizations are entirely separate and distinct. The first named dealt with labor questions exclusively, while the last named organization deals with prices only, and is still in

existence. While a number of the mills are still idle and have not signed the scale, it is for the reason that repairs have not been completed and not because of any determination to resist signing the scale. The manufacturers realize that they have lost the fight, and those whose mills are yet idle will sign the scale as soon as they are ready to resume operations. Since our last issue the following named firms have signed the scale:

Sharon Iron Company, Limited, Sharon, Pa.
Canonsburg Iron and Steel Company, Canonsburg, Pa.
P. L. Kimberly & Co., Limited, Sharon, Pa.
Chess, Cook & Co., Pittsburgh, Pa.
Arethusa Iron Works, New Castle, Pa.
Zug & Co., Limited, Pittsburgh, Pa.
Henry Lloyd Son & Co., Pittsburgh, Pa.
Columbia Iron and Steel Company, Uniontown, Pa.
Cherry Valley Iron Company, Leetonia, Ohio.
Hussey, Howe & Co., Limited, Pittsburgh, Pa.
Kirkpatrick & Co., Limited, Leechburg, Pa.
Chartiers Iron and Steel Company, Limited, Pittsburgh, Pa.
P. L. Kimberly & Co., Limited, for Atlantic Iron Works, Sharon Pa.
North Chicago Rolling Mill Company, Bay View, Wis.
Falcon Iron and Nail Company, Youngstown, Ohio.

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, July 25, 1888.

There has been further improvement in the statistical position of Block Tin during the first half of July, and to this fact, rather than to what is generally termed "speculative manipulation," is due the advance in prices. The policy of the producers in refraining from sending forward excessive supplies doubtless has some bearing upon the situation, but heavy deliveries have latterly figured more conspicuously than anything else and make a deep impression. Returns for the first half of the month show total deliveries of no less than 2300 tons, which, together with the smaller receipts from primary points, make a total reduction of 7600 tons in the supply on spot and afloat. There is still a considerable amount of Metal due consumers on three months' contracts. Shipments from the Straits, it is stated, will have been moderate the last half of the month, and a further decrease in stocks is expected. Speculation has been moderate, however, despite the improved situation.

Copper has fluctuated to a very moderate extent, and the turnover of contracts during the week has been rather small as well, outside interest being tame and the purchases by consumers still of a conservative nature. Chili Bar three months' futures are maintained at £78 by the syndicate, and new form contracts are at within £5 @ £6 of that price. The syndicate is still a ready buyer of Chili Bars at £78, but does not go beyond that price. It is the belief in well-informed quarters that the syndicate efforts are directed toward holding the market on the £78 level, and that no great advance is contemplated. There are rumors afloat of a projected amalgamation of the leading Spanish mine interests, which, if carried to a successful end, will greatly strengthen the situation. It is also stated that means are being sought in Paris to conciliate the interests of the English smelters. Several important sales of furnace material have been made by the Société des Métaux, particulars of which are kept strictly private. The Bratsberg Company have concluded sales covering the entire production of their mines up to June, 1889, at 13 francs. The contracts specify that the output shall not exceed 2000 tons.

The Scotch Pig-Iron market is showing decided improvement in tone. Makers have ceased storing in "makers' brands," and the "bears" in the speculative arena have consequently turned about in alarm to cover their "short" sales of warrants. This movement is reflected in an advance on warrants to 38/9. There has been no further curtailment of the production, and the change above referred to is attributed to the receipt at Birmingham of orders for a new arsenal for the Ameer of Afghanistan. The latter, it is anticipated, will require the use of a considerable quantity of Scotch Pigs. In to-day's transactions in Scotch warrants as high as 39/ was touched, and the firmness there was reflected in other branches. Makers' brands are better by about 6d than a week ago in most instances, and Middlesboro' Pig has improved 6d, while Bessemer Pig displays greater firmness at present rates.

The Steel trade has shown but a moderate degree of animation. Prices are a shade lower on Blooms and Slabs, but otherwise fairly steady.

There is not the slightest improvement in the demand for any class of old material.

There has been no important change in the condition of the Tin-Plate trade. A steady business is reported in most quarters and the the favorable position of supplies, in the face of the heavy production, together with the further rise in the cost of Block Tin, serves to hold values very steady.

A new make of Siemens Steel in bars will shortly be placed on the market, and also the make of a new Bessemer Steel works, both located in Glamorganshire.

The Hope Plate Iron Works are again in operation. The sale is reported of the Glaisdall furnaces for £8900. The Newport rolling mills have been started by the John Hill Company, employing 30 puddling furnaces.

Scotch Pig.—More business doing and the market stronger:

No. 1 Coltness,	f.o.b.	Glasgow.	48/
No. 1 Summerlee,	"	"	47.6
No. 1 Gartsherrie.	"	"	44 6
No. 1 Langloan,	"	"	44 6
No. 1 Carnbroe,	"	"	39.6
No. 1 Shotts,	"	at Leith	45/
No. 1 Glengarnock,	"	Ardrossan	43/
No. 1 Dalmellington,	"	"	40/
No. 1 Eglinton	"	"	39/

Steamer freights, Glasgow to New York, 5/; Liverpool to New York, 7/6.

Cleveland Pig.—The market quite strong with demand active. No. 1 Middlesboro', G.M.B., 35/; No. 3 do., 32/6.

Bessemer Pig.—Demand brisker, and prices show greater firmness. West Coast brands, mixed numbers, 43/, f.o.b. shipping point.

Spiegeleisen.—There has been no material change the past week. English 20% quoted 80/, f.o.b. N. W. England shipping point.

Steel Rails.—A fair volume of business at steady prices. Standard sections quoted at £3. 17/6, f.o.b. at N. W. England shipping point.

Steel Blooms.—Values rather weaker, but a fair trade at the decline. We quote at £3. 12/6 for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—Business moderate and prices barely steady. Bessemer, 2½ x 2½ inch, £3. 17/6, f.o.b. at N. W. England shipping point.

Steel Slabs.—Rather weak market, with demand light. Bessemer, £3. 16/3, f.o.b. at N. W. England shipping point.

Steel Wire Rods.—A quiet market, with prices steady. Mild Steel No. 6 quoted at £5. 13/9 and No. 5 at £5. 10/, f.o.b. at N. W. England shipping point.

Old Rails.—The market very quiet. Tees quoted at £2. 15/, and Double Heads £2. 17/6, c.i.f., New York.

Scrap Iron.—No improvement in the demand. Heavy Wrought quoted at £2. 5/ @ £2. 7/6, f.o.b.

Crop Ends.—Only small sales making. Bessemer quoted £2. 5/ @ £2. 7/6, f.o.b.

Tin Plate.—The demand has been good, and prices are firm. We quote, f.o.b. Liverpool:

IC Charcoal, Allaway grade	14/6 @ 15/
IC Bessemer steel, Coke finish	13/ @ 13/3
IC Siemens " " "	13/3 @ 13/6
IC Coke, B. V. grade	13/ @ 13/3
Charcoal Terne, Dean grade	12/6 @ 12/9

Manufactured Iron.—The market rather quiet. Prices a shade higher on Sheets, but otherwise unchanged. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Ord. Marked Bars	....			@	7	10	0
" Common "	4	17	6	@	5	0	0
" Bl'k Sheet, singles	....			@	6	15	0
Welsh Bars (f.o.b. Wales)	4	12	6	@	4	15	0

Tin.—The market somewhat easier today, and less active, showing £1. 15/ decline from the highest price. Straits quoted at £87. 10/6 @ £87. 15/, spot, and £88 @ £88. 5/ for three months' futures.

Copper.—Transactions have been moderate, but the market remains very firm. Chili Bars closed at £79. 15/, spot, and £78 @ £78. 5/, three months' futures. Best Selected, £75, nominal.

Lead.—There has been a very fair business and a better tone to the market. Soft Spanish, £13. 15/ at the close.

Spelter.—Demand has run fairly and prices show but slight change. Silesian, ordinary, £16. 2/6 at the close.

It is reported that the vacancy in the presidency of the Columbia School of Mines, New York City, caused by the resignation of President Barnard, may be filled by the selection of a Western metallurgist of national reputation, Prof. Wm. B. Potter. His selection would give general satisfaction to those interested in the success of this institution, but his retirement from his present field of usefulness would be the cause of universal regret among his present associates.

Crude oil from Lima, Ohio, will arrive at Chicago through a pipe line this week, and it is stated that the company expect to distribute 800,000 barrels of it per day.

Hardware.

Manufacturers and merchants are making active preparations for the fall trade, which has not yet opened in any considerable volume. Prices are receiving careful revision, and some minor changes are to be noted, but the market, as a whole, remains without important variation. Prices generally are not regarded as strong, and buyers are careful not to order beyond their requirements.

Cut Nails.

Considering the season, a fair trade is being done in Nails, and for the month has been above the average. Prices are pretty firmly adhered to, at least so far as standard brands are concerned. We continue to quote $1.90 to $1.95 for carload lots on dock, and $1.95 to $2 for small lots from store.

Wire Nails.

The demand is moderate, and prices continue without material change. Carload lots at factory are quoted regularly at $2.45 to $2.50, and small lots from store are offered at the usual advance.

Miscellaneous Prices.

The Association of Emery Wheel manufacturers have been formed, and most of the manufacturers have agreed upon the adoption of a common list to secure uniformity in list prices, which will be appreciated by the trade, to whom the diversity of lists has been a source of annoyance. The list, which goes into effect August 1, is on substantially the same basis as those heretofore in use. No agreement in regard to discounts has been entered into. The following companies are members of the Association:

NORTHAMPTON EMERY WHEEL CO.
UNION STONE CO.
SPRINGFIELD GLUE AND EMERY WHEEL CO.
GRANT CORUNDUM WHEEL CO.
NORTON EMERY WHEEL CO.
WALTHAM EMERY WHEEL CO.
STERLING EMERY WHEEL CO.
CELLULOID EMERY WHEEL CO.
NEW YORK BELTING AND PACKING CO.
PHILADELPHIA EMERY WHEEL CO.
LEHIGH EMERY WHEEL CO.
VITRIFIED WHEEL CO.

J. L. Otis, of the Northampton Emery Wheel Company, is the president; W. P. Lashure, of the Grant Corundum Wheel Company, vice-president, and C. L. Allen, of the Norton Emery Wheel Company, secretary and treasurer.

Some of our readers may not have observed the change in the classification and price of Screw Hooks and Strap Hinges and of heavy welded Hook Hinges which has been made by the manufacturers. It is indicated below, the prices given being f.o.b. factories, 60 days, or 2 per cent. discount for cash in ten days:

6, 8, 10 and 12 inch, per pound.....	3¾¢
14, 16, 18 and 20 inch, per pound.....	3¼¢
22, 24, 30 and 36 inch, per pound.....	2¾¢

The Nimick & Britton Mfg. Co., Pittsburgh, Pa., have issued their Padlock list in a separate sheet with the quotation of discount 70 per cent.

The prices on Tackle Blocks remain without open change, but slightly lower quotations are made in some cases, and the market is not quite as regular as could be desired.

Heavy Hammers and Sledges remain in a somewhat demoralized condition, and some low quotations are current.

Copper Rivets and Burrs are rather weaker than heretofore, notwithstanding the condition of the Copper market, and slightly lower quotations are made by some of the manufacturers. There is, however, some irregularity in the prices at which the different manufacturers are offering the goods, for which quotations are from 7½ to 10 per cent. apart.

The Lock market shows little sign of improvement, low prices prevailing and competition between the manufacturers being animated.

The prices of Padlocks also rule low, the extreme figures at which the goods are sold being somewhat lower than those which have prevailed for considerable time.

The following changes have recently been made in the extras on Rope: The extras on unoiled Manila and Sisal Rope have been reduced from ½ to ¼ cent per pound, a similar change having been made on coarse and medium unoiled Hay Rope. The extras on the fine Hay Rope have been changed from 1½ to 1¼ cents. The base prices remain as before.

The Mallory-Wheeler Company, New Haven, Conn., and 64 Reade street, New York, have issued under date of July, 1888, a pamphlet containing revised list prices and discounts for their Locks, Knobs, &c. The list remains on substantially the same basis as heretofore, the charges which are made being for the purpose of equalizing some goods that were out of proportion. The company have also added an entirely new line of low-priced Locks and Latches, which are furnished with their flat Steel Keys. They have also omitted some of their former numbers, which were prefixed by an "x," and added a number of patterns. At the same time the company send out extra pages for insertion in their catalogue. The regular discounts remain as before, all goods in the list being subject to a discount of 50 and 10 per cent., except Padlocks and Padlock Keys, which are subject to a discount of 65 and 10 per cent., a bonus of 2 per cent. in addition for cash within 30 days.

The following quotations on goods made by E. Blair, Bucyrus, Ohio, will be of interest:

Blair's Adjustable Husker, per gross.....	$8.00
Blair's Adjustable Clipper Husker.....	7.00
Blair's Fodder Squeezer, per doz.....	2.00
Blair's Climax Fodder Squeezer, per doz.	1.25

The market for Steel Squares continues practically as at our last report, when we referred to the termination of the combination. Since that time prices have, however, settled slightly, somewhat lower quotations being made owing to the active competition between some of the makers. This line of goods is regarded as quite unsettled, and there are no indications of an immediate arrangement by which prices will be controlled.

The Water Elevator and Purifier Company, Cincinnati, Ohio, in a circular relating to their Bucket Pump, allude to its special features and state that they are desirous of placing the sale of the Pumps in the hands of energetic and responsible dealers. They further state that they will ship sample orders for six Pumps, f.o.b. Cincinnati, at $10 each, subject to a discount of 40 and 5 per cent.

Ammunition.

A report is current that the E. C. Meacham Arms Company have made application to the association to be reinstated, but inquiry develops the fact that it is without foundation, no such proposition having been made by the company. That the company had made such application is referred to by some opposed to them in interest as indicating that they have failed in obtaining a supply of goods and as being *prima facie* evidence that their stock is broken and their supply cut off. As such report is without foundation the conclusion thus drawn from it of course falls to the ground, but the fact that the report is thus circulated indicates the annoyance caused by the cut prices of the company, and the efforts which are necessary by their competitors to break as far as possible the force of their quotations. Moreover advices indicate that the company are in fact supplying a good many goods at the slight concessions which it is their present policy to make, while at the same time many other goods are sold in a regular way, thus making the policy a profitable one. It is generally acknowledged that in the present condition of things a sufficient supply of goods can easily be obtained by the company which will enable them to continue their policy at least during the season. In this state of things there is a more pronounced feeling on the part of the trade that the association will be acting the part of wisdom if without unnecessary delay they reach such an understanding with the Meacham Company as will remove this demoralizing influence. It is assumed that with the recent withdrawal of the requirement that contract houses purchase one-third of their goods from the manufacturers and with such other minor modifications as may be desirable, arrangements might be agreed upon which would be satisfactory to the company and advantageous to all concerned. It is the general opinion of the best-informed parties that such a result is likely ultimately to ensue, unless in the meantime something radical is done in the way of recasting the existing system by which the association is marketing its goods. It is also believed that the company are now willing to be reinstated, provided they are given all the privileges of other specials.

The real difficulty in the case, however, is not the position taken by the Meacham Company, occupying though they do an influential position in the trade, but in the fact that the system which the association has adopted, and on the whole carried out thus far with a good measure of success, has apparently run its course, so that it fails to accomplish the desired ends of protecting the different classes of trade and securing uniformity of prices. This is indicated not only by the fact that retail buyers are able, in many cases, to obtain from their jobbers slight concessions in price, but is also alluded to in the remark of an exceptionally well-informed party that a large proportion of the contract houses are believed to be obtaining their goods with an extra 2½, 5 or 7½ per cent., given indirectly and in a covert way. To such an extent is this irregularity in price carried that well-posted buyers, large and small, who have not heretofore had the benefit of these cut prices are endeavoring to procure them, and the association in the present juncture are apparently not disposed to look too closely into tae facts, or to press their authority too far. The general fact that the trade are not disposed to enjoy the protection given them by the carefully elaborated scheme of the association, but in this case, as in so many other combinations, are willing to divide their extras, is a matter that must force itself upon the attention of the manufacturers, and unless the existing unsettled and unsatisfactory condition of things can be corrected, it is thought not unlikely there may be a decided change in their policy, and the adoption of a scheme of prices much simpler than those in force, in which there would not be attempted so complicated a protection for the trade.

Items.

Horton, Gilmore, McWilliams & Co., of Chicago, are making a new departure for a Hardware house. In addition to the 40 salesmen they now employ, they propose to put on from 10 to 15 more men to sell Jewelry to those who handle such goods-embracing dealers in fancy articles, drug,

gists, gentlemen's furnishers, dry-goods stores, &c. They will carry a full line of Optical Goods, Pocketbooks, Oxidized Jewelry and fine Cutlery. Their stock will be as complete as any of the best Jewelry houses in Chicago, with the exception of Watch Cases and Movements, which would have been added if they had room to carry them. Their Revolver department has been enlarged and made one of the most complete in the country. They recently gave an order for one of the largest stocks of Carving Knives known by the oldest salesman to be taken outside of Chicago. Their Bicycle and Tricycle business has exceeded their expectations and they intend next season to make it a more prominent branch of their business. The store has just been remodeled, to give more room to the Cutlery and Jewelry departments, and sliding ladders have been put along the shelves to expedite getting out orders. The removal of the offices to the front of the store has also given increased capacity for laying out goods in the rear, their facilities having been badly cramped by their greatly increased business. The room thus gained represents an increase of about 20 per cent. of space in the shipping department. The offices are now well adapted also for the accommodation of the increased force of clerks rendered necessary by the expansion of the business. The efficiency of the force has further been increased by the engagement of men of special training and proved ability to take charge of the several departments. It is their intention in all the lines handled to be second to none, whether they deal exclusively in Firearms, exclusively in Jewelry or exclusively in Hardware.

Sidney Shepard & Co., Buffalo, N. Y., have issued their July 1 illustrated price list of goods manufactured by them. Two pages are devoted to illustrations of their works, office and salesrooms, the remainder of the pamphlet being occupied by Deep Stamped Ware, Shallow Stamped Ware and Trimmings, Pieced Tinware, Japanned Ware and miscellaneous goods. The latter department includes an extensive variety of household specialties, Water Coolers, Coal Vases, Coal Hods and Grocers', Druggists' and Spice Dealers' Tinware. They will be pleased to mail a copy of this pamphlet on application.

The Mercantile Mfg. Co., Cleveland, Ohio, issue circulars relating to the Regent, Cyclone and Hercules Wringers, in which these goods are illustrated, with list prices.

J. F. Wollensak, Chicago, Ill., issues a circular and price list relating to the Eagle and the Shield Transom Lifters, which are similar to his Class 3 and Class 4 goods, except that they are a cheaper grade, and are put on the market to meet the demand for a low-priced Transom Lifter. The Shield Lifter has the patent Safety Spring, which acts as a cushion and receives the shock to prevent the breaking of the glass should the Transom be allowed to fall accidentally or through carelessness.

W. B. Avery Mfg. Company, Cleveland, Ohio, issue a price list devoted to their Avery Seamless Steel Elevator Bucket, Avery Combined Leather Punch and Saw Set and the Holt Combined Anvil and Vise. These goods are illustrated, with information in regard to their special features and advantages.

From the advertisement on page 42 it will be seen that King, O'Connor & Co., Baltimore, Md., call attention to the Little Giant Scroll Saw, the advantages of which they allude to. Its simplicity and the ease with which it is worked are points that they specially mention, as well as the low price at which it is offered.

E. Blair, Bucyrus, Ohio, issue circulars relating to his Hog and Pig Rings and Ringers, Blair's Fodder Squeezer, Adjustable and Clipper Husking Pins and the Climax Fodder Squeezer, in which these different articles are illustrated.

By the announcement which appears on page 46 it will be seen that the attention of manufacturers is called to the advantages possessed by Des Moines, Iowa, as a location for manufacturing enterprises. Among these it is mentioned that there are 16 lines of railroads there, and that coal is procurable at a very low figure.

The Pacific Lock and Seal Company, 304 North Eighth street, St. Louis, Mo., have issued a prospectus relating to the company and their manufactures. It is proposed to incorporate the company under the laws of Missouri. The pamphlet gives a full description with illustrations of the different goods for the manufacture of which the company hold patents.

The circular issued by Walter Hart, 65 Stone street, New York, describing the National Flag-Staff Bracket, of which he is the patentee, calls attention to the advantages possessed by it. It is pointed out that the separate parts when put together allow of the Bracket being set on any surface, giving any desired angle to the pole. Its safety is also referred to as follows:

By examining the cut at head of circular you will notice that the separate parts, when put together, allow of the Bracket being set on any surface, giving any desired angle to the pole. This Bracket is essentially a safety one, for as it is removable (and the only one that is) it should be made a fixture to the end of the staff, where it will balance the overhang of the staff, and act as a handle to the butt. By this it removes the danger (which exists with every other Bracket) arising when leaning over the ground to place the staff in position, for with mine, the staff being already in the Bracket, all that is required is to slip the foot of the Bracket into the staples, which latter should be secured by screws.

The Brackets are made with diameter of socket ranging from 1¼ to 2 inch, and a Group Bracket is also furnished providing for a display of five flags.

Shultz Belting Company, St. Louis, Mo., have sent us a very neat zylonite tablet for the pocket, which is used for calling attention to their Belting, and which gives on its last page a price list. This company are running their works, we are advised, with a full complement of operators, and report a large sale from the home and branch warehouses for their Shultz's Patent Fulled Leather Belting.

In a game of base-ball between the teams of Smith, Lyon & Field and William Bryce & Co., on the 21st inst., at Prospect Park, the former were defeated by the following score:

Innings.....	1	2	3	4	5	6	7	8	9	
W. B. & Co...	4	3	1	2	3	1	1	1	1	—17
S., L. & F....	0	0	0	0	0	1	0	3	0	— 4

C. H. Gurney & Co., manufacturers' agents for the sale of Steel, Heavy Hardware, and Railway, Machinists' and Mining Supplies, 247 and 249 Lake street, Chicago, have just issued a superb catalogue, comprising 283 pages of illustrations and price lists, bound in heavy boards with beveled edges, covered with olive-colored cloth. The name of the firm is stamped in gilt on the back and on the side. The contents comprise the full line of Tools manufactured by the Atha Tool Company, the Boston and Lockport Block Company's specialties, Fisher & Norris's goods, the Syracuse Bolt Company's products, &c. Each cut is given ample room for a proper display, and the whole work is above criticism as a specimen of good bookmaking. The large line of general Hardware manufactured by the Penn Hardware Company, for whom this firm have been sole Western agents for the past six years, is not included in this catalogue, but is covered by a special catalogue of 352 pages, which is forwarded to applicants. For the use of their office and salesmen Messrs. Gurney & Co. bind the two catalogues together, making a very handsome volume of 635 pages, which is put up in the best of leather with flexible covers.

The Rockford Cutlery Company, Keokuk, Iowa, send out a circular illustrating the Boss Wire Cutter. It is stated that it will cut No. 7 Wire with one-half the power required in the use of other Cutters.

We have received from the Moser Holder Company, Belleville, Ill., a circular relating to their Bundle or Package Carriers, to which we have before alluded. They advise us that they have 43 machines and can turn out 40,000 holders per day. They are appointing agents in the principal cities.

Our readers will observe among the Special Notices one in which a Hardware business in Northern Indiana is offered for sale by A. & B., who may be addressed in care of this office. The stock is referred to as invoicing about $5000 and the business as being a growing one in a prosperous town.

The announcement in our last issue in regard to the American Screw Company's new Screw was received by the trade with much interest. It is, however, proper that we should state that the company are not yet prepared to put these goods on the market, and are not intending to offer them to the trade before next Spring. They have but just perfected the development of the requisite machinery, and before they can supply the goods in any quantity they will have to build more machines, which they are now doing.

The Silver & Deming Mfg. Company, Salem, Ohio, issue an illustrated catalogue and price list of Ensilage and Feed Cutters, which they manufacture. In the preface to the pamphlet, which is dated July 1, the manufacturers direct special attention to the various improvements recently made in the construction of their Ohio Ensilage and Feed Cutters. The first 30 pages of the circular are devoted to illustrations and descriptions of these Cutters, and a number of testimonials are also printed. The remainder of the pamphlet consists of a treatise on Silos and Ensilage compiled from various sources for the Silver & Deming Mfg. Company. The construction of Silos and the value of Ensilage are not very generally understood, and a little treatise of this kind will be of much value. Accompanying the catalogue is a folded circular also relating to the Ohio Ensilage and Feed Cutters.

The Palmer Mfg. Company, 290 Pearl street, New York, favor us with advertising sheets concerning some of their goods. One sheet illustrates and describes their new Oblong Embossed White Brilliant Tray, which is some 11 x 14 inches in size. Two other circulars refer to their White Embossed Crumb Tray and Brush, in silver finish, the different designs being marked Nos. 35 and 55 respectively.

The Reading Hardware Company.

are now clearing away the *débris* of the late fire, so as to get in shape to rebuild as early as possible. They carried an insurance of $208,000 on their entire works. Of this amount of insurance about 80 per cent. is involved in the fire. The remaining portion of their works, consisting of Iron and Brass Foundries, Butt and Pulley departments and Screw Factory, are being run to their full capacity, and are now turning out Apple Parers, Coffee Mills, Japanned Store Shelf-Brackets, Cast Butts, Gravity and Surface Blind Hinges, Harb[illegible]

ster's and Lull & Porter Shutter Hinges, Gate Hinges and Latches, Turnbuckles, Tower Bolts, Barrel Bolts, Flat, Cased, Acme and Excelsior Shutter Bolts, Japanned and Bronzed Thumb Latches, Barn-Door Latches, Japanned Store-Door Handles, Japanned and Bronze Plated Door-Pulls, Japanned and Bronze Plated Drawer-Pulls, Common Frame and Axle Pulleys, and Jail Padlocks, Barn-Door Hangers, Barn-Door Rollers and Barn-Door Rail, Hay-Fork Pulleys and Grindstone Fixtures, Bench Screws and Foot Scrapers, Porch Irons and Well Wheels, Bed Fasts and Store-Truck Casters, Plate, French and Bed Casters, Window-Shade Brackets, Roller Ends, Waffle Irons, Sad Irons and Wood Screws. On last Monday, the 23d inst., they started up the Manhattan Hardware Company's works, and by August 1st they will be making quite a variety of the leading goods, and by September 1st they will be prepared to furnish two-thirds of their line of Builder's Hardware and one-third of their line of Locks, Knobs and Escutcheons. They expect to have the buildings that were destroyed by fire rebuilt within the next 90 days and restocked with new machinery, so that by January 1st they will be able to meet all the demands of the trade. Within one week they will have their plating and bronzing departments running, which will enable them to supply their well and favorably known line of Geneva Bronzed Hardware. They carry large and well-assorted stocks at their warehouses in New York, Philadelphia and Chicago, and are filling a large portion of their orders from same. The company ask us to thank the trade most cordially for their sympathy and favors, and they hope to be able at an early date to resume the pleasant relations in all departments which have so long existed.

Oliver Bros. & Phillips,

Pittsburgh, Pa., under date of July 20, issue the following quotations on their extensive line of goods. They also send out a circular relating to the Star Steel Fence Posts, Stiff Horse Hitchings and the Star Picket and Tent Pins, in which these articles are illustrated. Their quotations are as follows:

Page in catalogue.

Merchant Bar Iron.....$1.80 card rates
Steel Buggy Tire, 3-16 inch and heavier, per lb., net..... 2.25¢
Bridge, Tank, Plate and Angle Iron. Light I Beams and Channels. Special prices quoted on receipt of specifications.
46 Bridge Rivets, made of Soft Welding Steel, ⅝ and larger, per lb., net.....4¼¢
46 Bridge Rivets, made of Soft Welding Steel, ½, per lb., net.....4¢
All Rivet Steel is tested to the following requirements: Tensile strain per square inch, 50,000 to 60,000 lbs. Elongation in 8 inches, 28 per cent. Reduction of area, 60 per cent.
4 Horseshoe Iron, best quality, per lb., net.2½¢
156 Steel T Rail, 12, 16, 20 and 25 lbs. to the yard, per lb., net.....1.90¢
Steel Plow Anvils, 3, 3½, 4, 4½ and 5 in. long, per lb., net.....4¢
69 Iron Wedges, per lb., net.....3¼¢
69 Steel Wedges, Standard pattern, oil finish, per lb., net.....3¼¢
69 Steel Wedges, Standard pattern, axe finish, per lb., net.....4½¢
69 Steel Wedges, California or Truckee pattern, oil finish, per lb., net.....5¢
69 Steel Wedges, California or Truckee pattern, axe finish, per lb., net.....5½¢
73 Steel Crowbars, not over 50 lbs. each, per lb., net.....3¾¢
Steel Crowbars, 50 to 100 lbs. each, per lb. extra.....1¢
Steel Crowbars, 100 to 175 lbs. each, per lb. extra.....2¢
Steel Crowbars, 175 to 250 lbs. each, per lb. extra.....3¢
99 Beetle Rings, per lb., net.....4¼¢
161 Square Steel Harrow Teeth, headed, packed in kegs, 1, ⅞, ¾ inch, per lb., net.2¾¢
Square Steel Harrow Teeth, headed, packed in kegs, ⅝ inch, per lb., net....2¾¢
Square Steel Harrow Teeth, headed, packed in kegs, ½ inch, per lb., net.....3¢
167 Diamond Steel Harrow Teeth, headed hammer point, per lb., net.....3¢
Diamond Steel Harrow Teeth, headed shear point, per lb., net.....3¢

61 Screw Hook-and-Hinges, with Patent Hooks.....
- ¾ to 1 in. diameter, per lb., net.....4¾¢
- ⅝ in. diameter, per lb., net.....5¾¢
- ½ in. diameter, per lb., net.....7¾¢

60 Screw Hook and Strap Hinges, for orders of 2000 pairs and over, per lb., net.

6, 8, 10, 12 in.	14, 16, 18, 20 in.	22 to 36 in.
3½¢	3¢	2½¢

Ditto, for orders of 500 pairs and less than 2000 pairs:

6, 8, 10, 12, in.	14, 16, 18, 20 in.	22 to 36 in.
3⅝¢	3½¢	2⅝¢

Ditto, for orders of less than 500 pairs, per lb., net:

6, 8, 10, 12 in.	14, 16, 18, 20 in.	22 to 36 in.
3¾¢.	3¼¢	2¾¢

On orders for 2000 pairs and over we will make same freight allowances as on Carriage Bolts and Strap and T-Hinges (see freight clause below).
For orders less than 2000 pairs prices are f.o.b. Pittsburgh.
61 Cellar-Door Hinges, with hook for either wood or stone, 8 in. and longer, per lb., net.....3¼¢
125 Grass Rods, per lb., net, 9-16 in., 3½¢, ½ in.....4¢
125 Heel Bolts, Square Neck, per lb., net:

⅝ x 4½,	⅝ x 4¼,	⅝ x 4,
3.70¢,	3.80¢,	4¢,
⅝ x 3¾,	⅝ x 3½,	⅝ x 3 ¼,
4.20¢,	4.40¢,	4.60¢.

62, 63 Strap and T Hinges, per cent. off, net.70&10
28 to 31 Carriage Bolts (New List, per cent. off for net cash.....75&5&2
$500 bought between January and July, or July and January, 3½ per cent. extra.
$1000 bought between January and July, or July and January, 7 per cent. extra.
The extra discounts payable by pool commissioner.

FREIGHTS.

Actual freight may be allowed on all shipments of Strap and T Hinges and Carriage Bolts of 250 pounds or over to the following points, viz.: Boston, New York, Philadelphia, Baltimore, Pittsburgh, Cincinnati, Louisville, East St. Louis, Chicago, Milwaukee, Detroit, Toledo, Cleveland, Buffalo, Rochester, Syracuse, Albany and all intermediate points, provided the freight to such point does not exceed the freight to the place above named to which the place of destination is *nearest*.

28 to 31 Tire Bolts (New List), per cent. off, net cash.....70
32 Machine and Square Head Bolts, per cent. off, net cash.....70&10
34 Coach and Lag Screws, per cent. off, net cash.....75
Gimlet Point Lag Screws, per cent. off, net cash.....75
37 Skein Bolts, per cent. off, net cash.....75
38 Bolt Ends, per cent. off, net cash.....70&10
48 Hot Pressed Square Nuts, per lb. off new list, net.....5½¢
49 Hot Pressed Hexagon Nuts, per lb. off new list.....5½¢
52 to 54 Washers, standard sizes for Bolt:

Inches.....	⅝ to 1¼	½	7-16	⅜
Cts. per lb..	3¼	3¾	4	5
Inches.....	5-16	¼		3-16
Cts. per lb...	6	7		8

Nuts and Washers in less lots than one keg each size, ½¢ per lb. extra.
Nuts and Washers in 5-lb. boxes, 1¢ per lb. extra.
44 Bridge and Roof Bolts, 1 to 2 inches diameter, 1½ feet and over, per lb., net....3¢
44 Bridge and Roof Bolts, ⅞, ¾ and ⅝ inches diameter, over 4 feet long, per lb., net.....3¼¢
44 Bridge and Roof Bolts, ⅞, ¾ and ⅝ inch diameter, from 1½ to 4 feet long, per lb., net.....3½¢
44 Bridge Bolts, with enlarged ends, per lb. extra.....¼¢
44 Wrought-Iron Bridge Plates, punched, per lb., net.....3¼¢
45 Cast-Iron Washers, per lb., net.....2¾¢
108 Screw Hitching Rings, light, with ¼ Ring, per 100, net.....$2.90
108 Screw Hitching Rings, heavy, with 5-16 Ring, per 100, net.....$3.15
Mattocks, per cent. off net.....60, 10 and 5
Grub Hoes, per cent. off net.....60, 10 and 5
Railroad and Clay Picks, per cent. off net.....60 and 10

Coal Miners' Picks.

No.....	1	2	3	4
Weight, lbs.....	2	2½	3	3½
Length, inches.....	16	17½	19	20½
Price, per dozen, net cash.	$3.90	4.10	4.25	4.50

Stone Picks.

Lbs.....	5	6	7	8	9
Price, per dozen, net cash.....	$4.50	5.00	5.50	6.00	6.50

Steel Fence Pickets.

55 to 57 Fence Pickets, pat. machine bent; 2 ft. 10 in. long, made of ⅝ round steel, less per cent. net.....30&10
Figure A, Acorn Top, 9-inch spread, at 30 cents per lineal foot, less per cent. net.....30&10
Figure B, Circle Top, 6-inch spread, at 24 cents per lineal foot, less per cent. net.....30&10
Figure B, Circle Top, 9-inch spread, at 26 cents per lineal foot, less per cent. net.....30&10
Figure C, Diamond Top, 6-inch spread, at 25 cents per lineal foot, less per cent. net.....30&10
Figure C, Diamond Top, 9-inch spread, at 27 cents per lineal foot, less per cent. net.....30&10
Figure D, Scollop Top, 6-inch spread, at 28 cents per lineal foot, less per cent. net.....30&10
Figure D, Scollop Top, 9-inch spread, at 30 cents per lineal foot, less per cent. net.....30&10
Figure E, Oval Top, 28 cents per lineal foot, less per cent. net.....30&10
Galvanized Fence Pickets at 10 cents per lineal foot extra, net.
We make of heavier steel and to longer lengths, if required, charging proportionate advance.
108 Floor Hooks, per lb., net:
¾ in., 3½¢, ⅝ in., 5½¢.
59 Patent Spiral Lariat and Picket Pins, made of steel, per doz., net.....$1.50
Star Lariat or Picket Pins, made of, steel, per doz., net.....60¢
160 Horse Hitchings, self colored, per doz., net.....$1.65
Solid Steel Hop Bars, per doz., net.....12.00
Bail drills, per lb., net.....7½¢
Stone Drills, per lb., net.....6½c
Timber Dogs, Michigan Pattern, per set, net.....11¢
Steel Post-Hole Diggers, per doz.....$12.00
The Star Steel Fence Posts, 10¢ each, less 15 per cent, net

Chain.

110, Coil, self-colored or black, best Close Link. In ordering state quality wanted.
Hammer Chain, per lb., net:

3-16,	¼,	5-16,	⅜,	7-16,	½,	9-16 in.
9½¢,	6½¢,	5.40¢,	4¾¢,	4½¢,	4¼¢,	4.10¢,
⅝,	¾,	⅞,	1,	1⅛,	1¼ in.	
3.95¢,	3.80¢,	3.65¢,	3.75¢,	3.65¢;	3.60¢	

Crane Chain, per lb., net:

¼,	5-16	⅜,	7-16,	½ in.
13¼¢,	9½¢,	7.60¢,	6.60¢,	6.40¢,
9-16,	⅝,	¾,	⅞,	1 in.
6.15¢,	6¢,	5.65¢,	5.50¢,	5.35¢

Test for Crate Chain:

¼,	5-16,	⅜,	7-16,	½ in.
¾,	1½,	2,	3,	4 tons.
9-16,	⅝,	¾,		⅞ in.
5,	6,	8,		10½ tons.

Weight per 100 ft. of Close Link:

3-16,	¼,	5-16,	⅜,	7-16 in.
42#	75,	110,	160,	200,
½,	9-16,	⅝,	¾,	⅞ in.
260,	320,	410,	500,	700

Weight of Stud Chain per fathom:

1,	1 1-16,	1⅛,	1 3-16,	1¼,	1 5-16,
57,	63,	71,	76,	83,	92 lbs.
1⅜,	1 7-16	1½,	1 9-16,	1⅝,	1 11-16,
105,	110,	122,	133,	145,	152 lbs.
1¾,	1 13-16,	1⅞,	1 15-16	2,	2⅛, 2¼,
165,	179,	195,	209,	225,	280, 325 lbs.

Test for Stud Chain:

1,	1⅛,	1 3-16,	1¼,	1⅜,
21,	25½,	27¾,	31½,	38 tons.
1⅜,	1⅝,	1¾,	1⅞,	2,
45½,	53¾,	61¾,	71,	77½ tons.

120, Brake, with Eye Bolts for Cars, per lb., net cash, ⅜ in., 5½¢; 5-16 in., 6¢.
115, Well, bright, with Ring and S Hook, total length 29 inches, No. 2, per doz., net cash.....$1.00
Well, bright, with Ring and S Hook, total length 24 inches, No. 2, per doz., net cash.....90¢
114, Log, bright or self-colored, with wrought Swivel, two Hooks, or Hook and Ring, assorted lengths, per lb., net cash:

⅜,	½,	7-16 in.,
3.70¢,	4.15¢,	4.40¢,
⅜,	5-16	¼ in.,
4.65¢,	5.30¢,	6.40¢

119, Lariat, bright, 3-16, with two Swivels, Snap and Ring, per doz., net cash.....$7.25
116, Stay, Tongue and Fifth, black, per lb., net,

⅜,	5-16,	¼ in.,
4½¢,	5¢,	5¾¢,

100, Wagon Lock and Stretcher, black, 5-16 in., per lb., net.....5¼¢
100, Wagon Lock and Stretcher, black, ¼ in., per lb., net cash.....6¢
¼¢ per lb. advance for bright.
121, Hame Clips, Extra Wrought, Polished, 2 doz. in box, per doz., net.....14¢
112, Trace Chains, Straight Link, with Rings:

6½— 6—2, per pair..	32¢	7—12—2, per pair..	55¢
6½— 8—2, "	35¢	7—14—2, "	70¢
6½—10—2, "	39¢	7— 8—1, "	47¢
6½—12—2, "	48¢	7—10—1, "	52¢
6½— 8—1, "	43¢	7—12—1, "	66¢
6½—12—1, "	53¢	7— 8—0, "	58¢
7 — 8—2, "	39¢	7—10—0, "	69¢
7 —10—2, "	42¢		

Without Swivel, 1¢ per pair less. Twist Links, 2¢ per pair advance. Hooks, 2¢ per pair advance. Standard Weights, 3¢ per pair advance.
99, Lap Links, see Baker Standard List, off List.....50%
99, Lap Rings, see Baker Standard List, off List.....50&5%
99, Repair Links, see Baker Standard List, off List.....50%

Cold Shuts.

5-16 inch, net cash, per pound.....11¢
⅜ " " " .....9½¢
⅝ " " " .....7¢

Wagon Hardware.

† 84, Wagon Box Strap Bolts and Bolster Plates, 70 and 10 per cent off.....Net
† Wagon Box Strap Bolt Braces, concaved to fit our Straps:

10 x ½,	12 x ½,	14 x ½ in.
Each, net....3¢	3½¢	3¾¢

†85, Wrought Hammer Straps, light pattern, each, net ..... 4¢
†85, Wrought Hammer Straps, heavy pattern, each, net ..... 5¢
†86, Wrought Rub Irons, each net ..... 4¢
†86, Steel Pole Caps, bent to shape ..... 8¼¢
†Steel Pole Caps, with Holdback, bent to shape, each, net ..... 11¢
†101, Single Tree Hooks, ⅝ and 11-32, each, net ..... 2½¢
†101, Single Tree Irons, long pattern, each, net ..... 3.50¢
†121, Stay Chain Hooks, each, net ..... 3½¢
†92, Wagon Box Rods, narrow track, with Patent Solid Collar, each, net ..... 6¢
†92, Wagon Box Rods, wide track, with Patent Solid Collar, each, net ..... 6¾¢
†93, Wagon Box Rods, narrow track, without Patent Solid collar, each, net ..... 5¾¢
†93, Wagon Box Rods, wide track, without Patent Solid Collar, each, net ..... 6¼¢
†Wagon Box Rods, narrow track, with Malleable Collar, each, net ..... 6¼¢
†Wagon Box Rods, wide track, with Malleable Collar, each, net ..... 6¾¢
†91, Wagon Brake Ratchets, plain, each, net 7¼¢
†91, Wagon Brake Ratchets, finished, with Guard, each, net ..... 16¢

	Per cent. off, net.
Straight Clips, Stamped Baker	50&5
Welded Clips, Stamped Baker	50
Welded Clips, with Rings	50&5
Welded Clips, with Hooks, Stamped Baker	50
Twisted Clips, Stamped Baker	50
Ferrules and Hooks, Baker Pattern	50
Sets of Welded Clips for Single Trees or Double Trees, Baker Pattern	50
Neck Yoke Irons, Centers, Ferrules and Rings, Baker Pattern	50&5

Baker Axle Clips.

Total length	Diam. of rd. part.	Price per 100.	Extra price per 100 for each additional inch in length.	Per ct. off.
7	⅞ in.	$3.00	12¢	20
8	7-16 in.	4.30	15¢	20
9	½ in.	5.35	20¢	20
10	9-16 in.	6.70	23¢	20
10	⅝ in.	8.20	28¢	20

†95, Seat Hooks, per lb., net ..... 4¾¢
Steel Wrenches, per lb., net ..... 6½¢
†95, Corner Irons, Wrought, Nos. 1 and 2, per lb., net ..... 6½¢
†97, Plow and Wagon Clevises, per lb. net.
126, Bull Tongue Clevises, per lb., net:

⅝,	9-16,	½ in.
4.70¢	4.90¢	5¢

Southern Plow Clevises, Steel, per pound, net ..... 5¼¢
107, California Tire Rivets and Burrs, made of Soft Welding Steel, 5-16, per pound, net ..... 9¢
107, California Tire Rivets and Burrs, made of Soft Welding Steel, ¼, per pound, net ..... 10¢
†87, Wagon Box Staples, 1¼ in. to 2½ in., to clinch, per 1000, net $6
†87, Wagon Box Staples, made from Bevel Box Iron, to rivet on, per 1000, net ... $5.50
†105 Neck Yoke Eyes, ½, each, net ..... 3; 9-16, 3.25¢
†105, Neck Yoke Eyes, with ⅝ Rings, 4.75¢; with 7-16 in. ring, each, net ..... 5¢
†94, Steel King Bolts, regular pattern, ⅞, 1¢; 1⅛ and 1¼ diameter, per pound, net ... 3½¢
107, Soft Steel Wagon Rivets, ¼ in. diameter, 1 in. and longer, per pound, net ..... 5¢
107, Soft Steel Wagon Rivets, ¼ in. diameter, ¾ and ⅞ in. long, per pound, net ..... 6¢
107, Soft Steel Wagon Rivets, 3-16 in. diameter, 1 in. and longer, per pound, net .... 6¢
107, Soft Steel Wagon Rivets, 3-16 in. diameter, ¾ and ⅞ in. long, per pound, net ... 7¢
107, Wagon Rivets, in 5-pound paper boxes, per pound, extra ..... ½¢
107, Wagon Rivets, 25-pound wood boxes, per pound, extra ..... ¼¢
107, Wagon Rivets, in less lots than 1 keg each size, per pound, extra ..... ½¢
159, Ox Yoke Staples, per set, extra ..... 80¢
†90, Double Tree Plates, per pound, extra ... 5½¢
†88, Coupling Plates, per pound, extra ..... 3½¢
†89, Tongue Plates, per pound, extra ..... 5½¢
†90, Neck Yoke Plates, per set, 2 pieces, per set, extra ..... 5¢
22, Tongue Cap Iron, 1¾, 2 and 2¼ in. wide, per pound, extra ..... 2½¢
22, Sand Band Iron, 1¼ in. wide, per pound, extra ..... 2½¢
22, Hub Band Iron, per pound, extra ..... 2½¢
22, Hub Band Shape, made of Soft Welding Steel, per pound, extra ..... 2½¢

Single Trees Ironed with Baker Irons.

No. 1, 20 in. to 26 in. Southern Plow Single Tree, per dozen	$1.50
No. 1½, 28 in. or 30 in. Southern Plow Single Tree, per dozen	1.60
No. 1¾, 28 in. or 30 in. Western Plow, Single Tree, per dozen	1.90
No. 2, 30 in. Western, extra heavy Single Tree, per dozen	2.50
No. 3, 36 in. Wagon, per dozen	3.00
No. 4, 34 in. Wagon, per dozen	3.50
No. 5, 36 in. Southern Plow Double Tree	3.00
No. 6, 40 in. Neck Yokes, per dozen	4.00

On those goods marked † freight is equalized with Chicago, Cleveland, East St. Louis and Racine. All other goods f.o.b. cars or boat at Pittsburgh.

Trade Topics.

The following review of the Hardware market of Louisville, Ky., will be of interest:

The Hardware trade of Louisville, Ky., is showing signs of decided improvement in volume. The jobbing houses have completed the work of taking stock, and disclose a very satisfactory status. The amount of business transacted in the last six months was considerably above the average, and the outlook for the coming season is good. The salesmen are all out on the road again, and meet with ready response from the country merchants. The continued decline in prices of several lines of manufacture did not prevent the dealers keeping up full stocks, although at each stage down the manufacturers insisted that the lowest possible limit had been reached, yet down they came one more notch, evidencing wonderful elasticity of their statements, or else their possibilities; but now that bottom is believed to be touched really, there begins to be heavy buying, showing that the trade is disposed to have some confidence, and is anxious to invest idle money in staple goods that are likely to make fair returns.

The resumption by the mills is received with satisfaction by the trade generally, and contracts will now be filled on time instead of recourse being had to the provision which is invariably printed in bold type on all letterheads of the manufacturers, "Orders subject to strikes, &c., at mill."

Carriage and Wagon Goods move briskly, some Barb Wire is going out and the Wire-Nail trade is better than it ever has been. The Agricultural Implement dealers are receiving full stocks of their wares, looking for a heavy demand this fall.

The Ohio Valley Centennial Exhibition.

Among the Hardware exhibits noticed at the Ohio Valley Centennial Exposition were a line of Axles, Wagon, Carriage and Buggy, the production of the Standard Axle Mfg. Company, Wheeling, W. Va.

J. B. Schroeder & Co., Cincinnati, Ohio, show a varied and excellent line of Bronze Builders' and Cabinet Makers' Hardware, consisting of Loose Pin Butts, Knobs, Escutcheons, Drawer Pulls, Handles, Mortise Locks, &c.

Henry Disston & Son, Philadelphia, Pa., make a magnificent exhibit of their productions, consisting for the greater part of Circular, Cross-Cut and Hand Saws, Masons' Tools of every variety, the exhibit being displayed in a glass cabinet some 10 x 16 feet and 18 feet high, the front top of which is surmounted by a well-executed likeness of Henry Disston.

The Black Diamond File Works, of Philadelphia, Pa., adjoining the exhibit of Henry Disston & Sons, display a line of their productions in a compact and well-arranged form, showing these well-known Files to good advantage.

The Fischer Ice Tool Company, Hamilton, Ohio, display a large assortment of Ice Tools, Machinery, &c., the product of their works.

The Riverside Iron Works, for whom the Hazen Company, Cincinnati, are agents, provide an interesting display of their productions, consisting of Steel Pipe of every description, Steel Nails, Tubing, Bent Cold Steel Blooms, Billets, Ore, Pig Metal, &c.

The Whitely Steel Company, Springfield, Ohio, exhibit their Hot and Cold Rolled Steel, the production of this Company being entirely taken up annually in the construction of the Whitely Harvesting Machines.

The Buffalo Scale Company, through their agents, the Oppenheimer Hardware Company, Cincinnati, Ohio, exhibit a line of Postal, Counter, Market, Platform, Grain, Dormant, Stock, and numerous other Scales.

The Bandle Arms Company, Cincinnati, Ohio, display a select line of Sporting goods of every description, Guns, Powder, Shot and Hunting outfits.

One of the best arranged and most comprehensive displays of the Exposition is that of the Fred. J. Meyers Mfg. Company, Covington, Ky., occupying space in the main (Park) Exhibition Hall of 400 sq. feet, in which is exhibited a large and varied line of their productions, such as Brass and Steel Wire Cloth, Sieves, Garden and Lawn Trellis, Settees, Chairs, &c., Bird Cages, Fire Place Fenders, Wire Office and Bank Screens, Flower Stands, Vases, Weather Vanes, Office and Bank Railings, Window Guards, &c., and a variety of Hardware Novelties, including the famous Hunter Flour Sifters and Mixers, of which a huge pyramid is formed. This firm had the honor of having their Fencing, Window Guard, &c., recommended for use in and about the Centennial Buildings by the Honorable Board of Commissioners.

Johnson Bros., Cincinnati, Ohio, exhibit a line of the Zeeck Pattern Axe, of which they are manufacturers, which they claim to be superior in quality and finish, mentioning that none but the finest grade of Steel enters in its construction.

Arrangement of Stroes.

The illustration, Fig. 255, represents a Chain Rack, which is used by Kellogg, Johnson & Bliss, Chicago, of whose establishment we gave a description some time

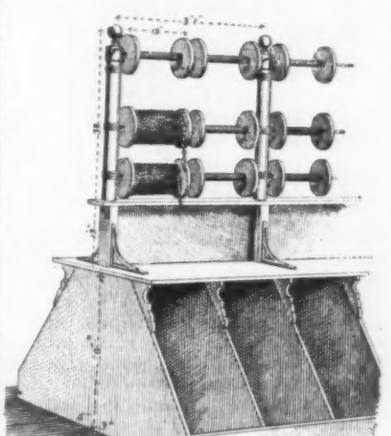


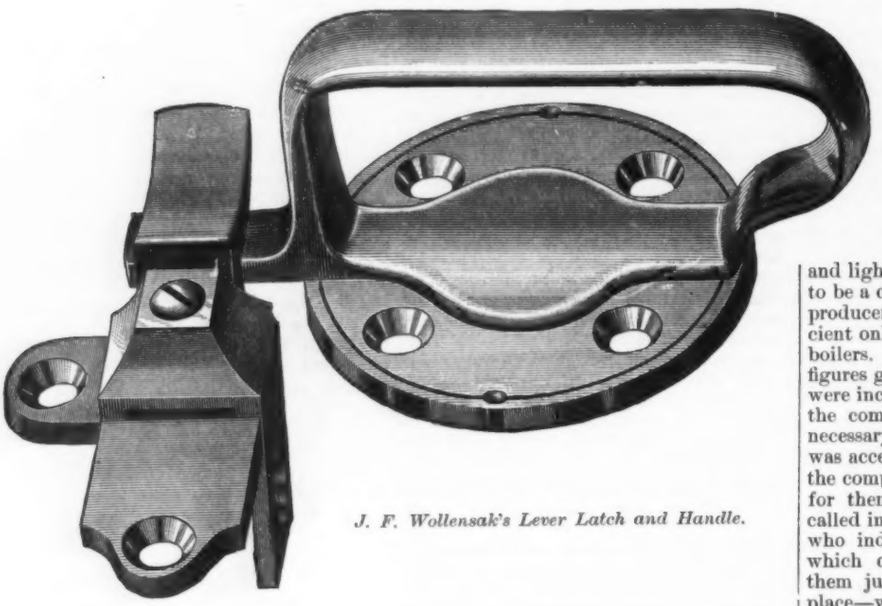
Fig. 255.—Chain Reels.

ago. The arrangement is, it will be seen, a combination of a Chain Reel and bins. The bins can be used for a variety of purposes, Kellogg, Johnson & Bliss using them for getting together small bills of Builders' Hardware by shipping department, but they will serve admirably for Nails, Horseshoes, &c. The rack consists, it will be observed, of wooden posts with ½-inch iron rods extending between them, on which wooden spools revolve. The upper row of rods can be lifted out of its place by means of open slots in the posts. The other rows are arranged with a deep hole on the left post, which will permit the rod when thrust all the way into it to clear the other post and thus be lifted out. The rack is alike on both sides, so that it can be used as conveniently on one side as the other. It is utilized for holding a great variety of Sash Chain, as well as Coil and other Chains.

The London *Engineer* illustrates in its impression of July 6 one set of the twin-screw engines of the great Italian warship Re Umberto as they stood in the erecting shop. They will indicate 10,000 horse-power on each screw, and are fitted with Joy's valve-gear. The Re Umberto is one of three ships of nearly similar type. She is 400 feet long, 75 feet beam, and, displacing 13,251 tons, will draw 28 feet 6 inches. She is intended to steam at 18 knots, and will carry four 110-ton guns in barbettes.

Lever Latch and Handle.

This article, which is put on the market by J. F. Wollensak, Chicago, Ill., was patented April 24, 1888. It is intended for use on refrigerators, ice boxes, &c. One of the points made in regard to it is that it may be used for either right or left



J. F. Wollensak's Lever Latch and Handle.

doors. That it may thus be reversible, the catch is made in two pieces, permitting either right or left use. The screw in the face of catch clamp is for the purpose of regulating the tension, and by means of this it may be so controlled as to hold the door tight, which is regarded as an improvement over the old method, in which this was accomplished by means of rubber, which is liable to harden and become useless. As indicated in the cut, there is a spring pin in the handle which engages in the notches of the plate, holding the handle in position when unlatched. These handles are made in polished brass, nickel-plated brass and japanned malleable iron and are packed one-quarter dozen in a box, with screws.

The A. & W. Flour Sifter.

A new flour sifter has just been brought out by the Adams & Westlake Company, of Chicago. It is made of tin, with a

The A. & W. Flour Sifter.

concave wire bottom and side-crank with four agitator wires. The crankshaft can be unscrewed and withdrawn, so that the agitator can be lifted out. It is finished with a straight, round scoop-handle, which is claimed to be more convenient than the usual cup-handle. The accompanying illustration will convey an excellent idea of its appearance. It is put up in cases of one dozen, wrapped in six different colors of tissue paper, making a very attractive package.

The cable tariff war has been ended by an agreement between the Commercial and the pool cable companies to maintain a rate of 25 cents a word, instead of the 12-cent rate that has prevailed for a year.

Cash Register Bank.

This attractive and ingenious toy is put on the market by the Henry C. Hart Mfg. Company, Detroit, Mich., and is represented in the illustration given herewith, which indicates the special feature which gives name to it. By pressing the button on the top of the safe any amount, from 1 cent to $9.99, may be registered. The money is inserted in the back of the bank, where there is a device to prevent its being shaken out. The bank is 4¾ inches in diameter, and has a brass front, the dial being in bright colors, and the finish of the toy being attractive. The bank is packed in a wooden box with a sliding cover, three dozen banks in a case.

Cash Register Bank.

A decision has just been rendered by the United States Court at Detroit, Mich., in the suit brought by Messrs. Lean & Blair, engineers and contractors, of Pittsburgh, Pa., last September, against the Detroit Copper and Brass Rolling Mills, of Detroit, Mich., to recover a balance on a contract for the construction of the plant of the defendants, which the defendants refused to pay, claiming that the contract had not been completed by the plaintiffs. It appears that in March, 1887, Lean & Blair contracted to build the works of the Detroit Copper and Brass Rolling Mills upon an entirely novel design, which was the conception of Mr. Lean, the senior member of the firm, and that, as the plan of running a copper works with gas fuel was altogether new, the figures of fuel consumption, &c., given by the defendants should be used as the basis from which to determine the number of gas producers that would be required to run the works, including the boilers as well as the furnaces. When the plant was completed and lighted up last August, it was found to be a complete success, except that the producer capacity was found to be sufficient only to run the furnaces, without the boilers. It was then discovered that the figures given by the company as the basis were incorrect. The plaintiffs then made the company a proposition to build the necessary additional gas producers, which was accepted, but afterward canceled by the company, and, being unable to figure for themselves what was necessary, they called in as an expert a furnace builder, who induced them to make alterations which cost them $13,000 and then left them just where they were in the first place—with just enough gas to run the furnaces, without the boilers. A verdict was rendered giving the plaintiffs the full amount of their claim, with interest and all costs. The amount involved was $17,000.

Electric lighting has been successfully tried on the Skane-Holland Railway, in Sweden, where a train was dispatched from Helsingborg, fitted with electric light in all the carriages except one, so as to demonstrate its superiority. There were altogether 17 incandescent lamps in use, fed from an accumulator in the luggage van. The light was very good and steady, and all the lamps could be lighted or extinguished in a moment. The installation has been effected by Messrs. Edwin Audrén & Co., Gothenburg, and it is the intention to fit all the express trains between Christiania and Helsingborg with electric lights.

The Butz Heat Regulator.

Temperature regulation, like ventilation, is among the first and most important considerations, not only in hospitals, churches and schoolhouses, but in private dwellings.

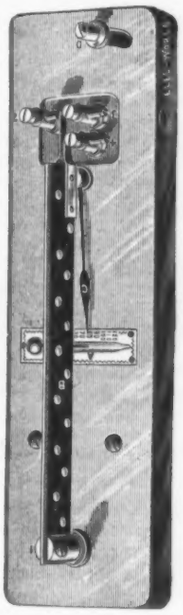


Fig. 1.—Thermostat.

In this climate the severe winters, together with the rapid changes in temperature, make some device by which a uniform temperature can be maintained within doors of the greatest importance, and elec-

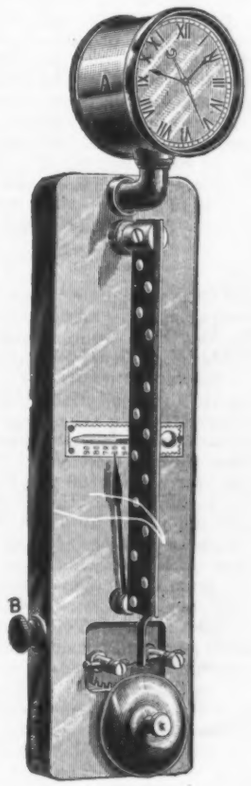


Fig. 2.—Automatic Switch Thermostat.

tricity is eminently adapted to perform the office of heat regulation. For this purpose the well-known thermostat (with such improvements as have been recently made) is employed in combination with other devices which operate to effect the regulation according to its indication.

A system of this nature was recently devised by Mr. A. M. Butz, of A. M. Butz & Co., 154 Lake street, Chicago, and is being now introduced in Boston, New York, Chicago and Minneapolis. This system can be applied to any form of heating device, whether steam, hot water or hot air. It can be applied to the heat source in each room, as on the radiator, register or stove, or to the drafts of the heater or furnace, wherever it may be located, either in the basement or in the barn.

The apparatus consists of a thermostat, Fig. 1, located in the reception hall or sitting-room, which by the influence of the temperature closes an opening and a closing electric circuit at the change of 1°. A motor, Fig. 4, is located in the furnace-room, having sufficient power to open and close a set of balanced dampers, or front and check drafts. There is also a battery, consisting of three cells of sufficient energy, it is said, to run the regulating device for three years without attention or renewal. A bell placed in the servant's room and wires to connect completes the system. As it is desirable in residences to have 5° or 10° lower temperature at night than in the day time, Mr. Butz has patented an automatic switch thermostat, as illustrated in Fig. 2. Before retiring it is determined at what degree the temperature should be set for the night by an adjusting screw, and at what time in the morning it is desired to have the temperature raised to the day temperature by turning alarm hand on the clock to, say, five or six o'clock, at which time it will automatically switch the thermostat from 60° to 70° or any other intermediate degree.

When applied to a steam, hot-water or hot-air heater, the motor is fastened to the furnace and a chain attached to the crank of the motor raises the front draft and closes the check draft, when the temperature falls ½° below the desired point in the room above, and immediately reverses the drafts when the temperature exceeds the desired degree where the thermostat is located. When the temperature falls 2° or 3° below the desired degree, a third circuit is closed on the thermostat on which the bell is located, and this will alarm the attendant to supply coal or shake the ashes down. In Fig. 3 is shown the thermo-electric valve for steam radiators which will be at once appreciated by steam users, as no expensive pneumatic appliances are needed for its operation. Three electric wires and two cells of battery in combination with the thermostat is all that is required to shut off

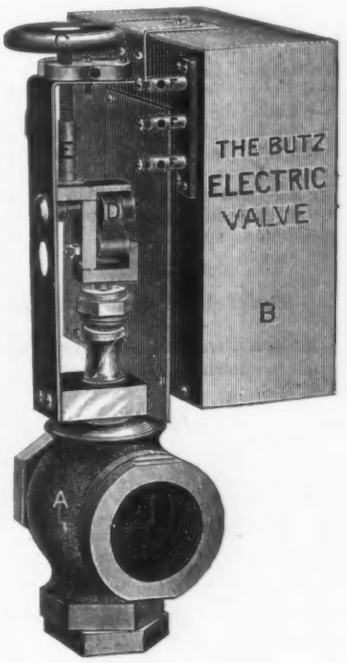


Fig. 3.—Thermo-Electric Valve.

or turn on steam for direct or indirect radiation, and, it is claimed, obtain perfect regulation of temperature in residences, public buildings, hospitals, schoolhouses and conservatories.

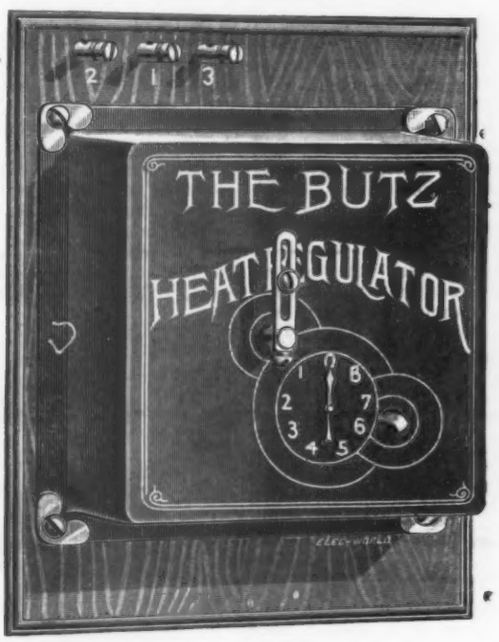


Fig. 4.—Outside View of Motor.

As will be seen in Fig. 3, the valve A can be used as an angle or straight-way valve. The steam enters the chamber surrounding the core in which the double valve seats are held closed by the valve stem E and eccentric D. The upper seat being necessarily a little larger than the lower, the steam pressure helps to hold it the more firmly. When the temperature falls, the "opening circuit" on the thermostat is closed, and the motor B re-

volves the shaft and eccentric D, opening the valve seats and allowing the steam and water to pass in and out freely in case the valve is used on the single pipe system. When the temperature rises above the desired degree and closes the "closing circuit" on the thermostat, the motor again revolves the shaft and eccentric D half a revolution, tightly closing the valve seats and shutting off the steam. Should it be required for any reason to open or close the valve without the aid of electricity, this can be done by loosening a set-screw on the eccentric D and resorting to the wheel C to raise or lower the valve stem. This system has been applied in many of the finest residences in Chicago, and a number of testimonials speak highly of its efficiency.

The Eclipse Damper.

An improved stove-pipe damper, a view of which is shown in the engraving presented herewith, is being placed upon the market by Charles Millar & Son, of Utica, N. Y. The damper plate is made with an elastic tongue, as shown in the engraving, which permits the spindle to be pushed through the pipe and plate, where it is firmly fastened in place by a malleable button. This button is so placed that when the spindle is in position it not only locks all the parts of the damper, but also tends to prevent the warping of the damper plate. A spring acting upon the stove-pipe and against the collar of the handle causes the damper to retain whatever position it may be placed in. The castings constituting the damper are smooth and carefully finished, the handle being nickel plated. The device is claimed to be very convenient, and is meeting with much favor at the hands of the trade. These dampers are packed in neat cases, each containing three dozen of a size, or they are packed in barrels, as may be preferred. In order to take the damper apart it is simply necessary to turn the button shown in the engraving, press the tongue away from the spindle, when it may be easily withdrawn.

Improved Eclipse Damper.

It is officially stated that the contracts between the companies interested have been signed, by which the business of the Jersey Central, Lehigh Valley, Lehigh and Hudson and Ontario and Western railroads will pass over the Poughkeepsie Bridge by a short road which is now being built from the western approach to Montgomery, connecting there with the Erie road. The bridge proper will be completed in four weeks, and all the approaches will be complete in three months. The Storm King Bridge is no longer a rival to the Poughkeepsie Bridge, its charter articles of incorporation and all papers owned by it having been bought by the Poughkeepsie Bridge Company over a year ago. It has been positively affirmed that the New York Central has captured the Poughkeepsie Bridge, thus heading off the plans of the Pennsylvania Road for an invasion of New England territory, but on this subject reports are contradictory.

The Collins Patent Sprinkler.

In the accompanying illustration is shown an improved form of sprinkling pot just being offered the trade by M. P. Kellogg, of Collins, N. Y. The engraving presents a perspective view of the device, with a portion of the side broken away to show the position of the agitator; also a view of the under side of the nozzle. The sprinkler is made of tin, and especially designed for distributing paris green or other insect poison held in solution or suspension in liquids. A feature of the device is the agitator provided for the purpose of thoroughly mixing the powders or poisons in the water and keeping them in a state of agitation. Another feature of novelty claimed for the device shown is the nozzle, the end of which is expanded into a shape much resembling a tennis racket. The under side is provided with perforations, the construction being such as to accomplish the objects sought in a convenient and positive manner. The pot may be employed as an ordinary sprinkler by simply drawing the free end of the spring catch away from the edge of the hood, permitting the agitator to be instantly removed. In order to facilitate the operation of the sprinkler the bail is so fixed as to retain a vertical position. The manufacturer claims that the device has proven very satisfactory for the purpose for which it is intended, and that there is no dripping from the nozzle when the sprinkler is not in use.

The Collins Patent Sprinkler.

Combined Stove and Glue-Pot.

The Cline Mfg. Co., of Chicago, Ill., are offering the trade an improved form of glue-pot and stove combined, a view of which is presented in the accompanying engraving. The device consists of a sheet-iron vessel, with cover and bail divided into two compartments. The lower one constitutes the fire-box, into which charcoal or any other convenient fuel may be placed, while the upper receptable is designed for the glue to be heated. The makers state that when Cline's patent aromatic composition fuel is employed the fire burns from the top toward the bottom, and that there is no oil, no blaze and no danger, qualities which should render it popular with those having use for such articles. In order to operate the device the makers present the following directions: Remove the glue-pot and the inside fire-box from the stove; then fill the box with fuel, the top of which sprinkle with a few drops of alcohol, or place a loose wad of paper on top of the fuel; set fire to it and let the same remain out of the stove until the blaze is all exhausted, which will only be a few moments. Remove the burnt paper from the fuel and place the fire-box in the stove, then the glue-pot and cover, allowing the stove to remain in the open air about 15 minutes, when it will be fairly started. Stir lightly about every three hours.

Combined Stove and Glue Pot.

About 40 firms were represented at the annual meeting of the American Association of Window Glass manufacturers, held in this city last week. According to the annual report the production of the association for the year, while large, was not as large as that of last year. Imports were larger than those of last year. During the year about 1300 pots had been in operation, and the production had amounted to about 500,000 boxes for 40 weeks of work. There was stock enough on hand to last for some time. Indications were that next year would see an increased supply. There were over 8500 men in the business and their organization was one of the strongest in the country. Skilled labor was paid from $3 to $6 a day, while more was paid for special kinds of work. F. L. Bodine, of Philadelphia, was elected president.

J. H. Lippincott confirms the report that he has purchased all the right in America to Thomas Edison's phonograph. He does not name the exact sum paid for the invention, but it exceeds $1,000,000. He says that the phonographs are ready for commercial use, and will be on the market before many days. Mr. Edison still owns the foreign patents to the invention.

CURRENT HARDWARE PRICES.

JULY 25, 1888.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

Ammunition.

Caps, Percussion, ₩ 1000—
Hicks & Goldmark's
F. L. Waterproof, 1-10's.....50¢ } dis 25@
S. B. Trimmed Edge, 1-10's.....65¢ } 25&
S. B. Ground Edge, Central Fire, 1-10's. 70¢ } 7½ %
Double Waterproof, 1-10's.....$1.40 }
Musket Waterproof, 1-10's.....50¢
G. D.....28¢
S. B.....30¢
Union Metallic Cartridge Co.
F. C. Trimmed.....50¢ }
F. L. Ground.....65¢ } dis 25@
Jen. Fire Ground.....70¢ } 25&
Double Waterproof.....$1.40 } 7½ %
Double Waterproof, in 1-10's.....$1.40 }
S. B. Genuine Imported.....45¢
Riley's K. S.....54¢ @ 55¢
Riley's L. Waterproof, Central Fire.....$1.60

Cartridges—
Rim Fire Cartridges.....dis 50&5&2 %
Rim Fire Military.....dis 15&2 %
Central Fire, Pistol and Rifle.....dis 25&5&2 %
Central Fire, Military & Sporting.....dis 15&5&2 %
Blank Cartridges, except 22 and 32 cal., an additional 10 % over above discounts.
Blank Cartridges .22 cal.....$1.75, dis 2 %
Blank Cartridges, 32 cal.....$3.50, dis 2 %
Primed Shells and Bullets.....dis 15&5&2 %
B. B. Caps, Round Ball.....$1.75, dis 2 %
B. B. Caps, Conical Ball, Swaged.....$2.00, dis 2 %

Primers—
Berdan Primers all sizes, and B. L. Caps (for Sturtevant Shells).....$1.00, dis 2 %
All other Primers, all sizes.....$1.20 dis 2 %

Shells—
First quality, 4, 8, 10 and 12 gauge.dis 25&10&2 %
First quality, 14, 16 and 20 gauge ($10 list).....dis 30&10&2 %
Star, Club, Rival and Climax Brands, 10 gauge, $9 list } ..dis 33⅓ &10 2 %
Star, Club, Rival and Climax Brands, 12 gauge, $8 list }
Club, Rival and Climax Brands, 14, 16 and 20 gauge.....dis 30&10&2 %
Seibold's Combination Shot Shells.....dis 15&2 %
Brass Shot Shells, 1st quality.....dis 60&2 %
Brass Shot Shells, Club, Rival and Climax.....dis 65&2 %

Small extras often given.

Shells Loaded—
List No. 19, 1887.....dis 20 & 10 %

Wads—
U. M. C. & W. R. A.—B. E., 11 up...$2.00 }
U. M. C. & W. R. A.—B. E., 9&10.. 2.30 } D e 20&2 %
U. M. C. & W. R. A.—B. E., 7&8... 2.60 } With small extras.
U. M. C. & W. R. A.—P. E., 11 up. 3.10 }
U. M. C. & W. R. A.—P. E., 9&10.. 4.00 }
U. M. C. & W. R. A.—P. E., 7&8 ... 490 }
Riley's B. E., 11 up.....$1.75
Riley's P. E. 11 @ 20.....$3.80

Anvils.—Eagle Anvils.....₩ ℔ 10¢, dis 20 @ 20&5 %
Peter Wright's.....9½¢
Armitage's Mouse Hole.....8½¢
Armitage Mouse Hole, Extra.....11½@11½¢
Trenton.....9½¢@9½¢
Wilkinson's.....9½¢@10¢
J. & Riley Carr, Patent Solid.....11¢@11½¢

Anvil Vise and Drill—
Millers Falls Co.....$18.00, dis 20 %
Thener Anvil and Vise.....dis 20 & 25 %
Allen Combined Anvil and Vise.....$3, dis 40&10 %
Moore & Barnes Mfg. Co.....dis 33⅓ %

Augers and Bits.

Douglass Mfg. Co. }
New Haven Copper Co. }
Wm. A. Ives & Co. } .....dis 70 %
Humphreysville Mfg. Co. }
French, Swift & Co. (F. H. Beecher) }
Cook's, Douglass Mfg. Co.....dis 55 %
Cook's, New Haven Copper Co...dis 50&10@50&10&5 %
Ives' Circular Lip.....dis 60 %
Patent Solid Head.....dis 30 %
D. E. Jennings & Co., No. 10, extension lip.....dis 40 %
D. E. Jennings & Co., No. 30.....dis 60 %
D. E. Jennings & Co., Auger Bits, in fancy boxes, ₩ set, 32¼ quarters, No 5, $5; No. 3C, $2.....dis 20 %
Lewis' Patent Single Twist.....dis 45 %
Russell Jennings' Augers and Bits.....dis 25 %
Imitation Jennings' Bits(new list).....dis 60@6J&5 %
Pugh's Black.....dis 20 %
Car Bits.....dis 50&10@60 %
L'Hommedieu Car Bits.....dis 15&10 %
Forstner Pat. Auger Bits.....dis 10 %

Hollow Augers—
Ives' }
French, Swift & Co. } dis 25&10 @ 25&10&5 %
Douglass' }
Bonney's Adjustable ₩ doz. $48.....dis 40&10 %
Stearns'.....dis 20&10 %
Ives' Expansive, each $4.50.....dis 50&10 %
Universal Expansive, each $4.50.....dis 20 %
Wood's.....dis 25 @ 25&10 %

Expansive Bits—
Clark's small, $18; large, $36.....dis 35 @ 35&5 %
Ives' No. 4, per doz., $60.....dis 35 @ 40 %
Swan's.....dis 40 %
Steer's, No. 1, $26; No. 2, $22.....dis 35 %
Stearns' No. 2, $48.....dis 20 %

Gimlet Bits—
Common.....₩ gross $2.75 @ $3.25
Diamond.....₩ doz. $1.10, dis 25&10 %
"Bee".....dis 25 @ 25&5 %
Double Cut, Shepardson's.....dis 45 @ 45&5 %
Double Cut, Ct. Valley Mfg. Co.....dis 30&10 %
Double Cut, Hartwell's, ₩ gro.....$5.25
Double Cut, Douglass'.....dis 40&10 %
Double Cut, Ives'.....dis 60 @ 60&5 %

Bit Stock Drills—
Morse Twist Drills.....dis 50&10&5 %
Standard.....dis 50&10&5 %
Cleveland.....dis 50&10&5 %
Syracuse, for metal.....dis 50&10&5 %
Syracuse, for wood (wood list).....dis 30 @ 30&5 %
Williams' or Holt's, for metal.....dis 50&10&10 %
Williams' or Holt's, for wood.....dis 40&10 %

Ship Augers and Bits—
L'Hommedieu's.....dis 15&10 % } Extras often given.
Watrous's.....dis 15&10 %
Snell's.....dis 15&10 %
Snell's Ship Auger Pat'n Car Bits.dis 15&10 %

Awl Hafts.

Sewing, Brass Ferrule.....$2.50 ₩ gross—dis 45&10 %
Patent Sewing, Short.....$1.00 ₩ doz—dis 40&10 %
Patent Sewing, Long.....$1.20 ₩ doz.—net
Patent Peg, Plain Top.....$10.00 ₩ gross—dis 45&10 %
Patent Peg, Leather Top.....$12.00 ₩ gross—dis 45&10 %

Awls, Brad Sets, &c.

Awls, Sewing, Common.....₩ gross $1.70—dis 35 %
Awls, Shouldered Peg....₩ gross $2.45—dis 40@40&10 %
Awls, Patent Peg.....₩ gross 63¢—dis 40@40&10 %
Awls, Shouldered Brad.....$2.70 ₩ gross—dis 35 %
Awls, Handled Brad.....$7.50 ₩ gross—dis 45 %
Awls, Handled Scratch.....$7.50 ₩ gross—dis 35&10 %
Awls, Socket Scratch.....$1.50 ₩ doz—dis 25 @ 30 %

Awl and Tool Sets.

Aiken's Sets, Awls & Tools, No. 20, ₩ doz. $10—dis 50&10 %
Gray's Ad Tool Hdls., Nos. 1, $12; 2, $18.; 3, $12; 4, $9. dis 25&25&10 %
Miller's Falls Adj. Tool Hdls., Nos. 1, $12; 2, $18. dis 25 %
Henry's Combination Haft.....₩ doz. $6
Brad Sets, No. 42, $10.50, No. 43, $12.50...dis 70&10&5 %
Brad Sets, Stanley's Excelsior, No. 1, $7.50. }
Brad Sets, Stanley's Excelsior, No. 2, $4.00. } dis 30&10 %
Brad Sets, Stanley's Excelsior, No. 3, $5.50. }

Axes.

Makers' and Special Brands—
First quality.....₩ doz. $6.00 @ $6.50
Others.....₩ doz. $5.50 @ $5.75

Axle Grease.

Fraser's, in bulk.....Keg ₩ ℔, 4¢; Pail, ₩ ℔, 5¢ net
Frasers, in boxes.....₩ gross $9.50
Dixon's Everlasting, in bxs., ₩ doz., 1 ℔: $1.20; 2 ℔, $2
Dixon's Everlasting.....10-℔ pails, each, 80¢
Lower grades, special brands.....₩ gro $5.50 @ $7

Axles.—No. 1, 4¢ @ 4¼¢; No. 2, 5¼ @ 5½¢,

Nos. 7 to 18.....dis 50@55 %
Nos. 19 to 22.....dis 60&10&10@70 %
National Wrought Steel Tubular Self-Oiling:
Standard Farm (1 to 5) and Special Farm (A1 to A5)
Less than 10 sets.....dis 33⅓ %
Over 10 sets.....dis 33⅓&5 %
X Strong Exp. (6 to 9), & XX Strong Truck (10 to 16):
Less than 10 sets.....dis 10 %
Over 10 sets.....dis 10&5 %

Bag Holders.

Strengle's Pat., ₩ doz $18.....dis 60 %

Balances.—Spring Balances.

Common 24 ℔.....₩ doz., $1.50—dis 50 %
Chatillon's Spring Balances.....dis 50 %
Chatillon's Circular Spring Balances.....dis 60 %

Bells.

Hand—
Light Brass.....dis 70&10 %
Extra Heavy.....dis 60&10 %
White Metal.....dis 60&10&10 %
Silver Chime.....dis 25&10&5 %
Globe (Cone's Patent).....dis 25&10 @ 35 %

Door—
Gong, Abbe's.....dis 25&10 @ 35 %
Gong, Yankee.....dis 40&10 %
Gong, Barton's.....dis 40&10 @ 50 %
Crank, Taylor's.....dis 25&10 %
Crank, Brooks'.....dis 50&10&2 %
Crank, Cone's.....dis 10 %
Crank, Connell's.....dis 20&10 %
Lever, Sargent's.....dis 60&10 %
Lever, Taylor's Bronzed or Plated.....net
Lever, Taylor's Japanned.....dis 25&10 %
Lever, R. E. ₩ Co.'s.....dis 50&10&2 %
Pull, Brook's.....dis 50&10&2 %
Pull Western.....dis 25&10 %

Cow—
Common Wrought.....dis 60&10 %
Western.....dis 20&10 %
Western, Sargent's list.....dis 70&10 %
Kentucky "Star".....dis 20&10 %
Kentucky, Sargent's list.....dis 70&10 %
Dodge, Genuine Kentucky, new list.dis 70@70&10 %
Texas Star.....dis 50&10 @ 50&10&5 %
Call.....dis 40@40&5 %
Farm Bells.....₩ ℔, 3¢ @ 3½¢
Steel Alloy Church and School Bells.....dis 40 %

Bellows.—Blacksmiths'.....dis 60&10&5 @ 60 %

Molders'.....dis 40 @ 40&10 %
Hand Bellows.....dis 40&10 @ 50 %

Belting, Rubber.

Common Standard.....dis 70&10 %
Standard.....dis 70&70&5 %
Extra.....dis 60&10 %
N. Y. S. & P. Co., Standard.....dis 60&5 %
N. Y. B. & P. Co., Extra Standard.....dis 50&10 %

Bench Stops.

Morrill's.....₩ doz $9—dis 50 %
Hotchkiss'.....₩ doz $5.00—dis 10 @ 10&10 %
Weston's, per doz No. 1, $10; No. 2, $9...dis 25&10&5 %
McGill's.....₩ doz $3—dis 10 %

Bits.—Auger, Gimlet Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders.

Extension, Barber's.....₩ doz $15.00—dis 40 @ 40&10 %
Extension, Ives'.....₩ doz $30.00—dis 60&5 @ 60&10 %
Diagonal.....₩ doz $24.00—dis 40 %
Angular.....₩ doz $24.00—dis 40&5 %

Blind Adjusters.

Domestic.....₩ per doz $3.00—dis 33⅓ %
Excelsior.....₩ doz $10.00—dis 50&10&2 %
Washburn's Self-Locking.....dis 20 @ 20&10 %

Blind Fasteners.

Mackrell's.....₩ doz pairs, $1.00—dis 20@20&10 %
Van Sand's Narrow Pattern.....$15 ₩ gro.—dis 60&10 %
Van Sand's Old Pattern.....$15 ₩ gro.—dis 55&10 %
Washburn's Old Pattern.....$9 ₩ gro. net
Merriman's.....new list, net
Austin & Eddy No. 2008.....$9 ₩ gro. net
Security Gravity.....$9 ₩ gro. net

Blind Staples.

Barbed, ½ in. and larger.....₩ ℔ 8 @ 8½¢ net
Barbed, ⅜ in.....₩ ℔ 9 @ 9½¢ net

Blocks.

Ordinary Tackle, list April 17, '85.....dis 40 %
Cleveland Block Co., Mal. Iron.....dis 50 %
Novelty Tackle Blocks, Mal. Iron.....dis 50 %

Bolts.

Door and Shutter—
Cast Iron Barrel, Square, &c.....dis 70 @ 70&10 %
Cast Iron Shutter Bolts.....dis 70 @ 70&10 %
Cast Iron Chain (Sargent's list).....dis 65&10 %
Ives' Patent Door Bolts.....dis 60 %
Wrought Barrel.....dis 70 @ 70&10 %
Wrought Square.....dis 70 @ 70&10 %
Wr't Shutter, all Iron, Stanley's list.....dis 60&10 %
Wr't Shutter, Brass Knob, Stanley's.....dis 40&10 %
Wrought Shutter, Sargent's list.....dis 60&10 %
Wrought Sunk Flush, Sargent's list.....dis 55&10 %
Wrought Sunk Flush, Stanley's list.....dis 50&10 %
Wrought B. E. Flush, Com'n Stanley's list.dis 55&10 %

Carriage—
Com. list June 10, '84.....dis 75&5&2 %
Genuine Eagle, list Oct., '84.....dis 75 @ 75&5 %
Phila. pattern, list Oct. 7, 84...dis 75&10@75&10&5 %
R. B. & W., old list.....dis 70 %

Tire—
Common, list Feb. 28, 1883.....dis 70 %
P. C. B. & N. Co., Empire, list Feb. 28, 1883.....dis 70 %
P. C. B. & N. Co., Philadel., list Oct. 84.....dis 82½ %
P.C.B.&N.Co., Keystone, Phil. list, Oct. '84.....dis 80 %
P.C.B.&N.Co., Norway, Phil. list, Oct. '84.dis 75&10 %
Am. S. Co., Norway, Phil., list Oct. 16, '84..dis 75&10 %
Am. S. Co., Eagle, Phil., list Oct. 16, '84.....dis 80 %
Am. S. Co., Philadel. list, Oct. 16, 84.....dis 82½ %
Am. S. Co., Bay State, list Feb. 28, '83.....dis 70 %
R. B. & W., Philadel. list Oct. 16, 1884.....dis 82 %
R. & E. Mfg. Co.....dis 70 %

Stove and Plow—
Stove.....dis 62½ %
Plow.....dis 60&5 %
Am. S. Co. Stove, Annealed.....dis 62½ %
R. B. & W., Plow.....dis 55 %
R. B. & W., Stove.....dis 62½ %
R. & E. Mfg. Co., Stove.....dis 62½ %
Machine.....dis 75 @ 75&10 %
Bolt Ends.....dis 75 @ 75&10 %

Borax.

₩ ℔ 9½@10¾¢

Boring Machines.

	Without Augers.	Upright.	Angular.
Douglas	$5.50	$6.75	dis 50 %
Snell's, Rice's Patent	5.50	6.75	dis 40&10&10 %
Jennings	5.50	6.75	dis 45&45&10%
Other Machines	2.35	2.75	net
Phillips' Pat., with Augers	7.00	7.50	net

Bow Pins

Humason, Beckley & Co.'s.....dis 60&10 %
Sargent & Co.'s.....$17 and $18, dis 60&10 %
Peck, Stow & W. Co.....dis 50&10 @ 50&10&5 %

Braces.

Backus, Nos. 110 to 114 and 31 to 33..dis 60&5@60&10%
Backus, Nos. 6, 8, 12, 14.....dis 60&10&5 %
Backus, Nos. 16, 18, 20, 29, 7 9, 11.....dis 70&10&5 %
Barber's, Nos. 10 to 16.....dis 50 %
Barber's, Nos. 30 to 33.....dis 50¢
Barber's, Nos. 40 to 63.....dis 50&10¢
Barker's, Nos. 8, 10 and 12.....dis 75&10@80 %
Barker's, Plated, Nos. 8, 10 and 12.....dis 65&10@70 %
Osgood's Ratchet.....dis 40&10@50 %
Spofford's.....dis 50&10 %
Ives' New Haven Novelty.....dis 70 @ 70&5 %
Ives' New Haven Ratchet.....dis 60&5 @ 60&10 %
Ives' Barber Ratchet.....dis 60&5 @ 60&10 %
Ives' Barbers.....dis 60&5 @ 60&10 %
Ives' Spofford.....dis 60&5 @ 60&10 %
Common Ball, American.....$1.10 @ $1.15
Bartholomew's, Nos. 25, 27, 30.....dis 50&10@60&5 %
Bartholomew's, Nos. 117 118 119.....dis 70 @ 70&5 %
Amidon's Barker's Imp'd Plain.....dis 75&10 @ 80 %
Amidon's Barker's Imp. Nickeled.....dis 65&10 @ 70 %
Amidon's Ratchet.....dis 75&10 @ 80 %
Amidon's Eclipse Ratchet.....dis 60 %
Amidon's Globe Jawed.....dis 40&40&10 %
Amidon's Corner Brace.....dis 40 @ 40&10 %
Amidon's Universal.....8 in., $2.10: 10 in., $2.25
Amidon's Buffalo Ball.....$1.10 @ $1.15
P. S. & W.....dis 50&10 %

Brackets.

Shelf, plain, Sargent's list.....dis 55&10 @ 55&10&10 %
Shelf, fancy, Sargent's list.....dis 60&10 @ 60&10&10 %
Reading, plain.....dis 60&10 @ 60&10&5 %
Reading, Rosette.....dis 60&10 @ 60&10&10 %

Bright Wire Goods.....dis 85 %

Broilers.	Inch.	9	10	9 x 11
Henis' Self-Basting..	Per doz.	$4.50	5.50	6.50

Buckets.—See Well Buckets and Pails.

Bull Rings.—Union Co. Nut.....dis 55 %

Sargent's.....dis 60%&10 @ 70&5 %
Hotchkiss' low list.....dis 30 %
Humason, Beckley & Co.'s.....dis 70 %
Peck, Stow & W. Co.'s.....dis 50&10 @ 50&10&10 %
Elirich Hdw. Co., White Metal, low list.dis50@50&10 %

Butcher's Cleavers.

Bradley's.....dis 25 @ 30
L. & I. J. White.....dis 20&5 %
Beatty's.....dis 40 @ 40&5%

	1	2	3	4	5	6	7	8
	$16.50	19.00	21.50	24.00	27.00	30.00	33.50	36.50

New Haven Edge Tool Co.'s.....dis 40
P. S. & W.....dis 33⅓&5@33⅓&10

Butts.

Brass—
Wrought Brass.....dis 70@70&10 %
Cast Brass, Tiebout's.....dis 33⅓ %
Cast Brass, Corbin's Fast.....dis 33⅓&10 %
Cast Brass, Loose Joint.....dis 33⅓&10 %

Cast Iron—
Fast Joint, Narrow.....dis 50&10
Fast Joint, Broad.....dis 55&10
Loose Joint. }
Loose Joint, Japanned. }
Loose Joint, Jap. with Acorns. }
Parliament Butts. } .....dis 70&10 %
Mayer's Hinges. }
Loose Pin, Acorns. }
Loose Pin, Acorns, Japanned. }
Loose Pin, Acorns, Jap, Pltd. Tips. }

Wrought (Steel)—
Fast Joint Narrow.....dis 70&10 %
Fast Joint, Lt. Narrow.....dis 70&10 %
Fast Joint, Broad.....dis 70&10 %
Loose Joint, Broad.....dis 70&10 %
Table Butts, Back Flaps, &c.....dis 70&10 %
Inside Blind, Regular.....dis 70&10 %
Inside Blind, Light.....dis 70&10 %
Loose Pin.....dis 70&10 %
Bronzed Wrought Butts.....dis 40&10@40&10&5 %

Calipers.—See Compasses.

Calks, Toe

Gautier.....₩ ℔ 5½@6¢
Dewicks.....₩ ℔ 5½@6¢

Can Openers.

Messenger's Comet.....₩ doz $3.00, dis 25 %
American.....₩ gross $3.00
Duplex.....₩ doz 25¢, dis 15 @ 20 %
Lyman's.....₩ doz $3.75, dis 20 %
No. 4, French.....₩ doz $2.25, dis 55 @ 60 %
No. 5, Iron handle.....₩ gross $6.00, dis 45 @ 50 %
Eureka.....₩ doz $2.50, dis 10 %
Sardine Scissors.....₩ doz $2.75@$3 00 %
Star.....₩ doz $2.75 %
Sprague, No. 1 ₩ 2 3 $2.50.....dis 50&10&10 %

World's Best, ₩ gross, No. 1, $12.00; No. 2, $24.00, No. 3, $36.00.
Universal ₩ doz $3.00, dis 35&5 %
Domestic ₩ doz $2.50, dis 45 %
Champion ₩ doz $2.00, dis 50 %

Cards.
Horse and Curry dis 10 @ 10&10 %
Cotton New list, Aug., 1883, dis 10 %
Wool " " " dis 10 %

Carpet Stretchers.
Cast Steel, Polished ₩ doz $2.25
Cast Iron, Steel Points ₩ doz 80¢
Socket ₩ doz $1.75
Bullard's dis 25 @ 25&10 %

Carpet Sweepers.
Bissell No. 5 ₩ doz $17.00
Bissell No. 7 New Drop Pan ₩ doz $19.00
Bissell Grand ₩ doz $36 00
Grand Rapids ₩ doz $24.00
Crown Jewel No. 1, $18; No. 2, $19; No. 3, $20
Magic ₩ doz $15.00
Jewel ₩ doz $17.00
Mystic ₩ doz $16.00
Cottage ₩ doz $15.00
Garland ₩ doz $18.00
Parlor Queen ₩ doz $24.00
Housewife's Delight ₩ doz $15.00
Queen ₩ doz $16.00
Queen, with band ₩ doz $18.00
King ₩ doz $30,00
Weed Improved ₩ doz $18.00
Hub ₩ doz $16.00
Cog Wheel ₩ doz $16.00

Cartridges.—See Ammunition.

Casters.
Bed, Plate, Shallow Socket } New list: Brass ..dis 55 @ 55&5 %; Others..dis 60 @ 60&5 %
Deep Socket 40&10 %
Yale Casters, list May, 1884 dis 30&10@40 %
Yale, Gem dis 60@60&5 %
Martin's Patent (Phœnix) dis 45&10 @ 50 %
Parson's Anti-Friction dis 60 @ 60&10 %
"Giant" Truck Casters dis 10 @ 10&5 %
Stationary Truck Casters dis 45&10

Cattle Loaders.
Humason, Beckley & Co.'s dis 70 %
Sargent's dis 66⅔&10 %
Hotchkiss dis 30 %
Peck Stow & W. Co. dis 50&10 %

Chain.
Trace, 6¼-10-2, exact sizes, ₩ pair, $1.03
Trace, 6¼-10-3, exact sizes, ₩ pair, .92
Trace .7-10-2, exact sizes, ₩ pair, 1.11
} dis 50&10&5 @ 50&10&7½ %
NOTE.—Traces, "Regular" sizes 3c net ₩ pair less than exact.
Log, Fifth, Stretcher, and other fancy Chains, list Nov. 1, 1884 dis 50&10 @ 50&10&5 %
American Coil 3-16 ¼ 5-16 ⅜ 7-16 ½ ⅝ ¾
In cask lots, 8.75 6.25 5.00 4.50 4.40 4.00 3.75 3.50
Less than cask lots, add ½¢@¾¢ ₩ ℔.
German Coil, list of June 20, 1887 ...dis 50&10&5@60 %
Ger. Halter Chain, list of June 20, 1887
Covert Halter, Hitching and Breast dis 50&2 %
Covert Traces dis 35&2 %
Oneida Halter Chain dis 60 @ 60&5 %
Galvanized Pump Chain ₩ ℔ 6¢ @ 6½¢
Jack Chain, Iron dis 70&10 @ 75 %
Jack Chain, Brass dis 65 @ 70 %

Chalk.
White ₩ gro 50¢
Red ₩ gro 70¢
Blue ₩ gro 85¢
White Crayons ₩ gro 12¢ @ 12½ dis 10¢

Chalk Lines.—See Lines.

Chisels.
Socket Framing and Firmer—
P., S. & W., New Haven and Middlesex, Mix } dis 75&5 @ 75&10 %
Buck Bros. dis 30 %
Merrill dis 60&10@60&10&5 %
L. & I. J. White dis 30 @ 30&5 %
Witherby and Douglass dis 75 @ 75&5 %
Tanged Firmers dis 40&10 %
Tanged Firmers, Butcher's $4.75 @ $5.00
Tanged Firmers, Spear & Jackson's $5.00 to £
Tanged Firmers, Buck Bros. dis 30 %
Cold Chisels, ₩ ℔ 16¢ @ 19¢

Chucks.
Beach Patent each, $8.00, dis 20 %
Morse's Adjustable each, $7.00, dis 20 @ 20&5 %
Danburr each, $6.00, dis 30 @ 30&5 %
Syracuse, Rails Pat. dis 25 %

Clamps.
Providence Tool Co.'s Wrought Iron dis 25 %
Adjustable, Gray's dis 20 %
Adjustable, Lambert's dis 20 %
Adjustable, Snow's dis 40&5 %
Adjustable, Hammer's dis 15 %
Adjustable, Stearns' dis 20&10 %
Stearns' Adjustable Cabinet and Corner dis 20&10 %
Cabinet, Sargent's dis 66⅔&10 %
Carriage Makers', Sargent's dis 66⅔&10 %
Eberhard Mfg. Co. dis 40&5 @ 40&10 %
Warner's dis 40&10 @ 40&10&5 %
Saw Clamps See Vises

Clips.
Norway, Axle, ¼ & 5-16 dis 55&5&5
Second grade Norway Axle, ¼ & 5-16 dis 65&5
Superior Axle Clips dis 66⅔&5 @ 66⅔&5&5 %
Norway Spring Bar Clips, 5-16 dis 60&5&5
Wrought-Iron Felloe Clips ₩ ℔ 5½¢
Steel Felloe Clips ₩ ℔ 5¢
Baker Axle Clips dis 25 %
Clockeyes dis 50 %

Cocks, Brass.
Hardware list dis 40&10&2 %

Coffee Mills.
Box and Side, List revised Jan. 1, 1888 dis 50&2 %
American, Enterprise Mfg Co. dis 20&10&30 %
The "Swift," Lane Bros dis 20&10 %

Compasses, Dividers, &c.
Compasses, Calipers, Dividers dis 70&70&10 %
Bemis & Call Co.'s Dividers dis 60&5 %
Bemis & Call Co.'s Compasses & Calipers dis 50&5 %
Bemis & Call Co.'s Wing & Inside or Outside dis 50&5 %
Bemis & Call Co.'s Double dis 60 %
Bemis & Call Co.'s (Call's Patent Inside) dis 30 %
Excelsior dis 50 %
J. Stevens & Co.'s Calipers and Dividers dis 25&10 %

Coopers' Tools.
Bradley's dis 20 %
Barton's dis 20@20&5 %
L. & I. J. White dis 20&5 %
Albertson Mfg. Co. dis 25 %
Beatty's dis 40 @ 40&5 %
Sandusky Tool Co. dis 30 @ 30&5 %

Corkscrews.
Humason & Beckley Mfg. Co. dis 40 @ 40&10 %
Clough's Patent dis 33⅓ @ 33⅓&5 %
Howe Bros. & Hulbert dis 35 %

Corn Knives and Cutters.
Bradley's dis 10 %
Wadsworth's dis 25 %

Cradles.—Grain dis 50&10 %

Crow Bars.
Cast Steel ₩ ℔ 4¢
Iron, Steel Points ₩ ℔ 3½¢

Curry Combs.
Fitch's dis 50&10 @ 50&10&10 %
Rubber ₩ doz $10.00, dis 20 %
Perfect dis 50 %

Curtain Pins.
Silvered Glass net
White Enamel net

Cutlery.
Beaver Falls and Booth's dis 33⅓ %
Wostenholme $7.75 to £

Dampers, &c.
Dampers, Buffalo dis 50 %
Buffalo Damper Clips dis 40 %
Crown Damper dis 40 %
Excelsior dis 40&10 %

Dividers—See Compasses.

Dog Collars.
Embossed Gilt, Pope & Stevens' list dis 30&10 %
Leather, Pope & Stevens' list dis 40 %
Brass, Pope & Stevens' list dis 40 %

Door Springs.
Torrey's Rod, regular size ₩ doz $1.30
Gray's ₩ gro, $20.00, dis 20 %
Bee Rod ₩ gro, $20.00, dis 20 %
Warner's No. 1, ₩ doz, $2.50; No. 2, $3.30, dis 40&10@50 %
Gem (Coil), list April 19, 1886 dis 20 %
Star (Coil), list April 19, 1886 dis 20 %
Victor (Coil) dis 60 @ 60&10 %
Champion (Coil) dis 60&10 @ 60&10&10 %
Philadelphia 6 in., $5.00; 8 in., $7.75, dis 30
Cowell's No. 1, ₩ doz $13.00; No. 2, $15.00, dis 50 %
Rubber, complete ₩ doz $4.50, dis 55&10 %
Hercules dis 50 %
Shaw Door Check and Spring dis 25 @ 30 @ 35 %
Elliott's Door Check and Spring dis 25 %

Drawing Knives.
P., S. & W., Mix, New Haven and Middlesex } dis 75&5 @ 75&10 %
Merrill dis 60&10&10 %
Witherby and Douglass dis 75@75&5 %
Watrous dis 15&10 @ 25 %
L. & I. J. White dis 20&5 %
Bradley's dis 35 %
Adjustable Handle dis 20 @ 25 %
Wilkinson's Folding dis 25 @ 25&5 %

Drills and Drill Stocks.
Blacksmiths' each, $1.75
Blacksmiths' Self-Feeding each, $7.50, dis 20 %
Breast, P. S. & W dis 40&10 %
Breast, Wilson's dis 30&5 %
Breast, Millers Falls each, $3.00 dis 25 %
Breast, Bartholomew's... each, $3.50, dis 25&10 @ 40 %
Ratchet, Merrill's dis 20 @ 20 & 5 %
Ratchet, Ingersoll's dis 25 %
Ratchet, Parker's dis 20 @ 20&5 %
Ratchet, Whitney's dis 20&10 %
Ratchet, Weston's dis 20@25 %
Ratchet, Moore's Triple Action dis 25 @ 30 %
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00 dis 20&10 %
Wilson's Drill Stocks dis 1' %
Automatic Boring Tools each, $1.75 @ $1.85
Twist Drills—
Morse dis 50&10&5 %
Standard dis 50&10&5 %
Syracuse dis 50&10&5 %
Cleveland dis 50&10&5 %
Williams dis 50&10&10 %

Drill Bits.—See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans.
Small sizes ₩ ℔ 7 ¢
Large sizes ₩ ℔ 6½ ¢

Egg Beaters.
Dover ₩ doz., $2.10
National ₩ doz $4.50, dis 33⅓ %
Family (T. & S. Mfg. Co.) ₩ gro, $17.00@$18.00
Standard (Standard Co.) ₩ gro, $6.00
Kingston (Standard Co.) ₩ gro, $6.50
Acme (Standard Co. ₩ gro, $6.00
Duplex (Standard Co.) ₩ gro, $18.00
Rival (Standard Co.) ₩ gro. $12.00
Triumph (T. & S. Mfg. Co.) ₩ gro, 10.50@$11.50
Advance No. 1 ₩ gro $10.50
Advance, No. 2 ₩ gro $10.00
Bryant's ₩ gro $15.00
Ayres' Spiral ₩ gro $6
Double (Hamblin & Russell Mfg. Co.) ₩ gro, $16.20
Easy (Hamblin & Russell Mfg. Co.) ₩ gro, $14.00
Triple (Hamblin & Russell Mfg. Co.) ₩ gro, $16.20
Spiral (Hamblin & Russell Mfg. Co.) ₩ gro, $4.50
Paine, Diehl & Co's ₩ gro $24.00

Electric Bell Sets.—Wollensak's dis 15 %
Bigelow & Dowse dis 20 %

Emery.

	No. 4 to 46 gr.	No. 54 to 150 gr.	Flour, CF FF.
Kegs, ₩ ℔	4 ¢	5 ¢	2½¢
½ kegs, ₩ ℔	4½¢	5½¢	2¾¢
¼ kegs, ₩ ℔	4½¢	5½¢	3 ¢
10-℔ cans, 10 cans	6 ¢	6½¢	5 ¢
10-℔ cans, less than 10	10 ¢	10 ¢	7½¢

Enameled and Tinned Ware.—See Hollow-Ware.

Escutcheon Pins.
Iron, list Nov. 11, 1885 dis 50&10 @ 50&10&5
Brass dis 60 @ 60&5 %

Escutcheons.
Door Lock Same discounts as Door Locks
Brass Thread dis 60 @ 60&10 %
Wood dis 25 %

Faucets.
Fenn's dis 40 %
Bohren's Patent Rubber Ball dis 25 %
Fenn's Cork Stops dis 33⅓ %
Star dis 60 @ 60&5 %
Frary's Patent Petroleum dis 40 @ 40&5 %
West's Patent Key dis 50&10 %
Anchor Lock dis 45 %
Metallic Key, Leather Lined dis 55&10 @ 60&10 %
Cork Lined dis 70 @ 70&10 %
Burnside's Red Cedar dis 50 %
Burnside's Red Cedar, bbl. lots dis 50&10 %
J. Sommer's Best Block Tin Key dis 40 %
J. Sommer's Cork Lined, 1st quality dis 50 %
J. Sommer's Diamond Lock dis 40 %
J. Sommer's Perfection, Fin. Red Cedar dis 50 %
J. Sommer's Goodenough Cedar dis 60 %
Self-Measuring, Enterprise ₩ doz $36.00—dis 20&10 %
Self-Measuring, Lane's ₩ doz $36.00—dis 25&10 %
Self-Measuring, Victor ₩ doz $36.00—dis 25&10 %

Felloe Plates. ₩ ℔ 6 @ 6½¢

Fifth Wheels.—Derby and Cincinnati dis 45&5 %

Files.
Domestic—
Nicholson Files, Rasps, &c dis 60&5 @ 60&10 %
Nicholson (X. F.) Files dis 25 %
Nicholson's Royal Files (Seconds dis 75 (extra prices on certain sizes.)
Other makers, best brands dis 60&5 @ 60&10&5 %
Fair grades dis 60@10&10 @ 70 %
Second quality dis 70&5 @ 75 %
Heller's Horse Rasps dis 50&7½ @ 50&10 %
McCaffrey's Horse Rasps dis 50&10 %
Imported—
J. & Riley Carr List, April 1, 1883, dis 15 %
J. & Riley Carr Horse Rasps dis 10 %
Moss & Gamble List April 1, 1883, dis 15 %
Butcher Butcher's list, dis 20 %
Stubs Stubs list, dis 25 @ 30 %
Turton's Turton's list dis. 20 @ 25 %
Greaves' Horse Rasps American list dis 60 %

Fluting Machines.
Knox, 4¼-inch Rolls $3.25 each
Knox, 6-inch Rolls $3.60 each
} dis 35 %
Eagle 3¼-inch Roll $2.15, dis 35 %
Eagle, 5¼-inch Roll 2.85, dis 35 %
Crown, 4¼ in., $3.50; 6-in, $4.00; 8-in., $6.50 each, dis 35 %
Crown Jewel 6-in., $3.50 each, dis 35 %
American, 5-in., $3; 6-in., $3.40; 7-in., $4.50 each, dis 35 %
Domestic Fluter $1.50 each, net
Geneva Hand Fluter, White Metal ₩ doz $12, dis 25 %
Crown Hand Fluter, Nos. 1, $15; 2, $12.50; 3, $10, dis 30 %
Shepard Hand Fluter, No. 85 ₩ doz $15.30, dis 40 %
Shepard Hand Fluter, No. 110 ₩ doz $11, dis 40 %
Shepard Hand Fluter, No. 95 ₩ doz $8, dis 40 %
Clark's Hand Fluter ₩ doz $15.00, dis 35 %
Combined Fluter and Sad Iron ₩ doz $15.00, dis 30 %
Buffalo ₩ doz $10.00 dis 10 %

Fluting Scissors dis 45 %

Fly Traps.
Paragon ₩ doz $1.50 @ 1.75

Forks.—Hay, Manure, &c. Asso. list dis 65&5 %
Hay, Manure, &c., Phila. list dis 60 @ 60&5 %
Plated, see Spoons.

Freezers, Ice Cream.
Buffalo Champion dis 60&10&5 %
Shepard's Lightning dis 60 %
White Mountain dis 60 %

Fruit and Jelly Presses.
Enterprise Mfg. Co. dis 30&10 @ 30 %
Henis ₩ doz $4.50
P. D. & Co ₩ doz $4.50
Shepard's Queen City dis 40 %

Fry Pans.
High List dis 75&5 @ 75&10&5 %
No. 0 1 2 3 4 5 6 7 8
₩ doz $3.75 4.70 5.30 5.95 6.55 7.50 8.75 10.00 11.25
Low List dis 70&10 %
No 0 1 2 3 4 5 6 7 8
₩ doz. $3.00 3.75 4.25 4.75 5.25 6 00 7.00 8.00 9.00

Fuse.
Common Hemp Fuse, for dry ground ₩ 1000 ft. $2.70
Common Cotton Fuse, for dry ground 2.35
Single Taped Fuse, for wet ground 4.75
Double Taped Fuse, for very wet ground 6.00
Triple Taped Fuse, for very wet ground 7.25
Small Gutta Percha Fuse, for water 3.50
Large Gutta Percha Fuse, for water 12.00

Gauges.
Marking Mortise, &c dis 60&10 %
Wire, low list dis 10&10 %
Wire, Wheeler, Madden & Co. dis 10 %
Wire, Morse's dis 50 @ 50&5 %
Wire, Brown & Sharpe's dis 10 @ 20 %

Gimlets.—Nail and Spike dis 50&10&5 %
"Eureka" Gimlets dis 40&10 %
"Diamond" Gimlets ₩ gross $5.00
Double Cut, Shepardson's dis 40 @ 45&5 %
Double Cut, Ives' dis 60 @ 60&5 %
Double Cut, Douglass' dis 40&10 %
"Bee" ₩ gross $12, dis 25 @ 25&5 %

Glue.—Le Page's Liquid dis 25 @ 25&5%
Upton's Liquid dis 35 %

Glue Pots.
Tinned and Enameled dis 40&5 @ 40&10%
Family, Howe's "Eureka" dis 40 %
Family, L. F. & C.'s "Handy" dis 50 %

Grindstones
Small at factory ₩ ton $7.50 @ 9.00

Grindstone Fixtures.
Sargent's Patent dis 70&10 %
Reading Hardware Co. dis 30&10 %

Hack Saws.—See Saws.

Halters.—Covert's, Rope, ¼-in. Jute dis 50&2 %
Covert's, Rope, ¼-in., Hemp dis 40&2 %
Covert's Adj. Rope Halters dis 40&2 %
Covert's Hemp Horse and Cattle Tie dis 50&2 %
Covert's Jute Horse and Cattle Ties dis 60&10&2 %

Hammers.
Handled Hammers.
Maydole's List Dec. 1, 1885, dis 25 @ 25&1 0%
Buffalo Hammer Co. } List Jan. 15, '87 Dis. 50 @ 50&10 %
C. Hammond & Son. }
Humason & Beckley. }
Atha Tool Co. }
Fayette R. Plumb }
Verree dis 40&10 @ 50
Magnetic Tack, Nos. 1,2,3,&4, $1.25, 1.50 & 1.75 dis 30&10 %
Nelson Tool Works dis 40&10 %
Warner & Nobles dis 20 @ 25 %
Peck, Stow & Wilcox dis 40 %
Sargent's dis 33⅓&10 %
Heavy Hammers and Sledges—
3 ℔ and under ₩ ℔ 40¢ } dis 70 & 10
3 to 5 ℔ ₩ ℔ 36¢ } @ 75 %
Over 5 ℔ ₩ ℔ 30¢ }
Wilkinson's Smiths' 10½¢ @ 11¢ ₩ ℔

Hand Cuffs and Leg Irons.
Providence Tool Co., Hand Cuffs, $15.00 ₩ doz. dis 10%
Providence Tool Co. Leg Irons, $25.00 ₩ doz. dis 10%
Tower's dis 25 %
Daley's Improved Hand Cuffs: 2 Hands, Polished, ₩ doz, $48; Nickeled, $57; 3 Hands, Polished, ₩ doz. $72; Nickeled, $84 dis 25 %

Handles.
Iron, Wrought or Cast.—
Door or Thumb.
Nos. 0 1 2 3 4
Per doz. $0.90 1.00 1.18 1.35 1.50 dis 60&10&10
Roggin's Latches ₩ doz. 30¢ @ 3
Bronze Iron Drop Latches ₩ doz. 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88 net
Barn Door ₩ doz. $1.40, dis 10&10 %
Chest and Lifting dis 70 %
Handles, Wood—
Saw and Plane dis 40&10 @ 40&10&2 %
Hammer, Hatchet, Axe, Sledge, &c. dis 30 %
Brad Awl ₩ gross $2.00
Hickory Firmer Chisel, assorted ₩ gross 4.50
Hickory Firmer Chisel, large ₩ gross 5.00
Apple Firmer Chisel, assorted ₩ gross 5.00
Apple Firmer Chisel, large ₩ gross 6.00
Socket Firmer Chisel, assorted ₩ gross 3.00
Socket Framing Chisel, assorted ₩ gross 5.00
J. B. Smith Co.'s Pat. File dis 50 %
File, assorted ₩ gross 2.75 } dis 40 @ 40&10 %
Auger, assorted ₩ gross 5.00 }
Auger, large ₩ gross 7.00 }
Patent Auger, Ives' dis 30&10 %
Patent Auger, Douglass' ₩ set $1.25 net
Patent Auger, Swan's ₩ set $1.00 net
Hoe, Rake, Shovel, &c. dis 50&10 %
Cross Cut Saw Handles—
Atkins' No. 1 Loop, ₩ pair, 30¢ No. 3, 22¢; No. 2 and No. 4 Reversible, 22¢.
Boynton's Loop Saw Handles 50¢, dis 60 %
Champion 15¢

Hangers.
Barn Door, old patterns dis 60&10&10 @ 70 %
Barn Door, New England dis 60&10&10 @ 70 %
Samson Steel Anti-Friction dis 55
Orleans Steel dis 55 %
Hamilton Wrought Wood Track dis 55 %
U. S. Wood Track dis 65 %
Champion dis 60&10 %
Rider and Wooster, Medina Mfg. Co.'s list dis 70 %
Climax Anti-Friction dis 55 %
Climax Steel Anti-Friction dis 55 %
Zenith Tor Wood Track dis 55 %
Reed's Steel Arm dis 50 %
Challenge, Barn Door dis 50 %
Sterling Improved (Anti-Friction) dis 45&10 %
Victor, No. 1, $15; No. 2, $16.50; No. 3, $18 dis 50&2 %
Cheritree dis 50&10 %
Kidder's dis 50&10 @ 60 %
The "Boss" dis 60 %

Best Anti-Friction.......................dis 60 %
Duplex (Wood Track).......................dis 60 %
Terry's Patent. ....⅌ doz. pr.. 4 in. $10; 5 in., $12.......................dis 50&5 %
Cronk's Patent....No. 4, $12; No. 5, $14.40; No. 6, $18 ....dis 50&15 @ 60 %
Wood Track Iron Clad......⅌ ft. 10¢, dis 50&15 @ 60 %
Carrier Steel Anti-Friction.......dis50 @ 50&5 %
Architect.......................⅌ set $6.00, dis 20 %
Eclipse.......................dis 20&10
Felix.......................⅌ set $4.50, dis 20 %
Richards'.......................dis30@30&10 %
Lane's Steel Anti-Friction.......................dis 40&10 %
The Ball Bearing Door Hanger....dis 20&10 @ 25&10 %
Warner's Patent.......................dis 20@20&10 %
Stearns' Anti-Friction.......................dis 20 @ 20&10 %
Stearns' Challenge. ....dis 25&10 @ 25&10&10 %
Faultless.......................dis 40 @ 40&5 %
American.......................⅌ set $6; dis 20&10 %
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢........dis 40 %
Paragon, Nos. 1, 2 and 3.......................dis 40&10 %
Paragon, Nos. 5, 5½, 7 and 8.......................dis 20&10 %
Crescent.......................dis 60@60&10 %
Nickel, Cast Iron.......................dis 50 %
Nickel, Malleable Iron and Steel.......................dis 40 %
Scranton Anti Friction Single Strap..........dis 33⅓ %
Scranton Anti-Friction Double Strap..........dis 40 %
Universal Anti Friction.......................dis 40 %
Wild West, 4 in. wheel, $15; 5 in. wheel, $21....dis 45 %

Harness Snaps.—See Snaps.

Hatchets.—List Jan. 1, 1886.
Isaiah Blood.......................dis 35 @40%
Hunt's Shingling Lath and Claw.............dis 40&5 %
Hunt's Broad.......................dis 40 %
Buffalo Hammer Co.......................dis 40&10@50 %
Hurd's.......................dis 40&10 @ 50 %
Fayette R. Plumb.......................dis 40&10 @ 50 %
Wm. Mann, Jr., & Co.......................dis 50 @ 50&5%
Underhill Edge Tool Co..............dis 40&5 @ 40&10 %
Underhill's Haines and Bright goods.........dis 33⅓ %
C. Hammond & Son.......................dis 40&10 @ 50 %
Simmons.......................dis 40&10 @ 50 %
Peck's.......................dis 40&10 @ 40&10&5 %
Kelly's.......................dis 50@50&5 %
Sargent & Co.......................dis 50 %
Ten Eyck Edge Tool Co..........dis 40&10@40&10&5 %
Collins, following list.......................dis 10 %

Shingling,	Nos. 1 2 3	⅌ doz	$5.50	$6.00	$6.50
Claw,	Nos. 1 2 3	⅌ doz	6.00	6.50	7.00
Lathing	Nos. 1 2 3	⅌ doz	5.50	6.00	6.50

Hay Knives.
Lightning.......................Mfrs. price ⅌ doz $18 dis 25 %; Jobber's Extras
Electric.......................⅌ doz $17 } dis 30 @
Gem.......................⅌ doz $18 } 30&5%
Wadsworth's.......................dis 40&7½ @ 40&10 %
Carter's Needle.......................⅌ doz $11.50 @ $12.00
Heath's.......................⅌ doz $13.50 @ $14.00

Hinges.
Wrought Iron Hinges—
Strap and T.......................dis 70&10 @ 70&10&5 %
Screw Hook and Strap { 6 to 12 in., ⅌ ℔....... 3¾¢; 14 to 20 in., ⅌ ℔....... 3¼¢; 22 to 36 in., ⅌ ℔....... 2¾¢ }
Heavy Welded Hook { 6 to 12 in., ⅌ ℔....... 3¾¢; 14 to 20 in., ⅌ ℔....... 3¼¢; 22 to 36 in., ⅌ ℔....... 2¾¢ }
Screw Hook and Eye...... { ⅜ in....⅌ doz $1.50; ½ in....⅌ doz $2.45; ⅝ in....⅌ doz $3.80 } dis 10%
Rolled Blind Hinges, Nos 32 and 34.......dis 50&10
Rolled Blind Hinges, Nos. 232 and 234....dis 55&10 %
Rolled Plate.......................dis 70&10 %
Rolled Raised.......................dis 70&10
Plate Hinges "Providence" { 8, 10 & 12 in., ⅌ ℔.......................5; over 12 in., ⅌ ℔.......................4¢ }
Spring Hinges—
Geer's Spring and Blank Butts.......................dis 40 %
Union Spring Hinge Co.'s list, March. 1886...dis 20 %
Acme and U. S.......................dis 30 %
Empire and Crown.......................dis 20 %
Hero and Monarch.......................dis 50 %
American, Gem, and Star, Japanned..........dis 20 %
American, Gem, and Star, Bronzed.......................net
Oxford, Bronze and Brass.......................net
Barker's Double Acting.......................dis 20&10 %
Union Mfg. Co.......................dis 25 %
Bommer's.......................dis 30
Buckman's.......................dis 15@20 %
Chicago.......................dis 30 %
Gate Hinges—
Western.......................⅌ doz $4.40, dis 55 %
N. E.......................⅌ doz $7.00, dis 55 %
N. E. Reversible.............⅌ doz $5.20, dis 55&10 %
Clark's, Nos. 1 2 3.......................dis 60&10&5 %
N. Y. State.......................⅌ doz $5.00, dis 55&10 %
Automatic.......................⅌ doz $12.50, dis 50 %
Common Sense..........⅌ doz pair $4.50, dis 50 %
Seymour's.......................dis 45&10 %
Shepard's.......................dis 60&10&5 %
Reed's Latch and Hinges......⅌ doz sets $12, dis 50 %
Blind Hinges—
Parker.......................dis 75&2 %
Palmer.......................dis 50&5&10 %
Seymour.......................dis 70&2 %
Nicholson.......................dis 45&10 %
Huffer.......................dis 50 %
Clark's, Nos. 1, 3, 5, 40 and 50......dis 75&10&5@80 %
Clark's Mortise Gravity.......................dis 50 %
Sargent's, Nos. 1, 3, 5, 11, 13...dis 75&10@75&10&5 %
Sargent's, No. 12.......................dis 75&10&10 %
Reading's Gravity..dis 75&10 @ 75&10&5 %
Shepard's Noiseless Niagara Buffalo, Champion, Steamboat, Clark's Old Pattern and Clark's Tip Pattern.......................dis 75&10&5 %
Shepard's O. S., Lull & Porter.......dis 75&10 %
Shepard's Acme, Lull & Porter.......dis 75&5 %
Shepard's Queen City Reversible.............dis 75 %
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.......................dis 75&10&2½ %
North's Automatic Blind Fixtures, No. 2, for Wood, $10.50; No. 3, for Brick, $13.50....dis 25&2 %

Hoes.
Handled—
Garden, Mortar, &c.......................dis 65&5 %
Planter's, Cotton, &c.......................dis 65&5 %
Warren Hoe.......................dis 60 %
Magic.......................⅌ doz $4.?0
Eye—
D. & H. Scovil.......................dis 15
Lane's Crescent Scovil Pattern.......................dis 45 %
Lane's Crescent Planters Pattern.........dis 45 & 5 %
Lane's Razor Blade, Scovil Pattern.......dis 30 %
Maynard. S. & O. Pat.......................dis 45&5 %
Sandusky Tool Co., " ".......................dis 60 %
Hubbard & Co., " ".......................dis 60 %
Bare " ".......................dis 60 %
Grub.......................dis 60 @ 60&10 %

Hog Rings and Ringers.
Hill's Improved Ringers.......................⅌ doz. $4.50
Hill's Old Style Ringers.......................⅌ doz. $3.00
Hill's Tongs.......................⅌ doz, $4.50
Hill's Rings.......................⅌ doz boxes, $2.25 @ 2.40
Perfect Rings.......................⅌ doz boxes $1.75 @ 2.00
Perfect Ringers.......................⅌ doz. $2.50
Blair's Hog Ringers.......................⅌ doz, $2.60 @ $2.65
Blair's Hog Rings.......................⅌ doz 95¢ @ 1.00
Champion Ringers.......................⅌ doz $2.00
Champion Rings, Double.......................⅌ doz, $2.25
Brown's Ringers.......................⅌ doz, $2.00
Brown's Rings.......................⅌ doz, $1.25 @ 1.30

Hoisting Apparatus.
"Moore's" Hand Hoist, with Lock Brake.......dis 20 %
"Moore's" Differential Pulley Block.............dis 40 %

Holders, File and Tool.
Balz Pat.......................⅌ doz $4; dis 25 %
Nicholson File Holders.......................dis 20 %

Hollow-Ware.
Iron—
Stove Hollow-Ware, Ground...dis 60&10@60&10&5 %
Stove Hollow-Ware, Unground ....dis 70&5@70&10 %
Enameled and Tinned Hollow-Ware—
Kettles.......................dis 70 @ 70&5 %
Oval Boilers, Saucepans & Glue Pots.......................dis 40&5 @ 40&10 %
Gray Enameled Ware.......................dis 10 @ 40&5 %
Agate and Granite Ware.......................dis 25 %
Rustless Hollow-Ware.......................dis 50 @ 50&5 %
Galvanized Tea-Kettles—

Inch	6	7	8	9
Each	55¢	60¢	65¢	75¢

Silver Plated—4 mo. or 5 % cash in 30 days.
Reed & Barton.......................dis 40&5 %
Meriden Brittania Co.......................dis 40&5 %
Simpson, Hall, Miller & Co.......................dis 40&5 %
Rogers & Brother.......................dis 40&5 %
Hartford Silver Plate Co.......................dis 40&5&5 %
William Rogers Mfg. Co.......................dis 40&5&5 %

Hooks.
Cast Iron—
Bird Cage, Sargent's list.......................dis 60&10&10 %
Bird Cage, Reading.......................dis 60&10&10 %
Clothes Line, Sargent's list.......................dis 60&10&10 %
Clothes Line, Reading list. dis 60&10 @ 60&10&10 %
Ceiling, Sargent's list.......................dis55&10&10 %
Harness, Reading list........dis 55&10 @ 55&10&10 %
Coat and Hat, Sargent's list.......................dis 55&10 %
Coat and Hat, Reading......dis 50&10 @ 50&10&10 %
Wrought Iron—
Cotton.......................⅌ doz $1.25
Cotton Pat. (N. Y. Mallet & Handle W'ks).....dis 30 %
Tassel and Picture (T. & S. Mfg. Co.)..........dis 50 %
Wrought Staples, Hooks, &c.....See Wrought Goods
Bench Hooks.......................See Bench Stops
Wire—
Wire Coat and Hat, Gem, list April, 1886.....dis 45 %
Wire Coat and Hat, Miles', list April, 1886....dis 45
Indestructible Coat and Hat.......................dis. 45 %
Wire Coat and Hat, Standard.......................dis 45 %
Belt.......................dis 75&10 @ 80 %
Grass.......................⅌ doz $2.00
Bush.......................dis 55 @ 60 %
Whiffletree—Patent.......................dis 55 %
Hooks and Eyes—Malleable Iron......dis 70 @ 70&10 %
Hooks and Eyes—Brass.......................dis 60&10&10 %
Fish Hooks, American.......................dis 50 %

Horse Nails.

Nos.	6	7	8	9	10	
Ausable	28¢	26¢	25¢	24¢	23¢	dis 25&10@25&10&10 %
Clinton, Fin	24¢	22¢	21¢	20¢	19¢	dis 40&10 @ 50 %
Essex	28¢	26¢	25¢	24¢	23¢	dis25&10@25&10&10
Lyra	25¢	23¢	22¢	21¢	20¢	dis 40&10&5@50 %
Snowden	25¢	23¢	22¢	21¢	20¢	dis 40&10&5@50 %
Putnam	24¢	22¢	21¢	20¢	19¢	dis 5&10&2½&2½ %
Vulcan	23¢	21¢	20¢	19¢	18¢	dis 12½&5
Northwest'n	25¢	23¢	22¢	21¢	20¢	dis 10&10&5&5 %
Globe	23¢	21¢	20¢	19¢	18¢	dis 12½&5&5 %
A. C.	25¢	23¢	22¢	21¢	20¢	dis 25&10 @ 33⅓&5 %
C. B.-K.	25¢	23¢	22¢	21¢	20¢	dis 25&10 @ 33⅓&5 %
Champlain	28¢	26¢	25¢	24¢	23¢	dis25&10&10 %
New Haven	28¢	26¢	25¢	24¢	23¢	dis25&10@25&10&10 %
Saranac	23¢	21¢	20¢	19¢	18¢	dis 30&10 %
Champion	25¢	23¢	22¢	21¢	20¢	dis 10&10&10 %
Capewell	28¢	26¢	25¢	24¢	23¢	dis 35&5 @ 35&10 %
Star	23¢	21¢	20¢	19¢	18¢	dis 10&10@10&12½ %
Anchor	23¢	21¢	20¢	19¢	18¢	dis 35 %
Western	23¢	21¢	20¢	19¢	18¢	dis 40&10 %

Empire Bronzed.......................14 per lb.

Horse Shoes—See Shoes, Horse.

Hose, Rubber, competition...75&10 @ 75&10&5 %
Standard.......................dis 70@7 &10 %
Extra.......................dis 60 @ 60&10 %
N. Y. B. & P. Co., Para.......................dis 30&10 %
N. Y. B. & P. Co., Extra.......................dis 50 %
N. Y. B. & P. Co., Dundee.......................dis 60&10&5 %

Ice Picks, Chisels, &c.
Am. Ice Chisel Pol'd. ...⅌ doz $3.00, dis 20@20&5 %
National Ice Chisel.......................⅌ doz $6.25, dis 20 %
Novelty Ice Breakers.......................⅌ doz $6.25, dis 20 %
Dunlap's Ring Picks.......................⅌ doz $2.00, dis 15 %
Wood Head Picks, Sargent's....⅌ doz $1.60, dis 50&10 %
Iron Head Picks, Sargent's.....⅌ doz $1.25, dis 50&10 %
Ice Mallets, Pick in handle.........⅌ doz $2.00, dis 15 %
Ice Axes, Small Cast or Mall...⅌ doz $1.25, dis 20&10 %
Combination Ice Tools.......................⅌ doz $2.00 net
Acme Ice Pick and Tongs...⅌ gross $55.00, dis 50&10 %
Roger's Lightning Ice Chisel.......................⅌ gross $23.50

Ice Tongs.
Champion, S. S. & Co.......⅌ doz $4.00, dis 25&10 %
Family.......................⅌ doz $2.75, dis 20@25 %

Jack Screws.—See Screws.

Kettles.

	Spun.	Stamped.
Brass, 7 to 17 in., ⅌ ℔.	24¢	21 ¢
Brass larger than 17 inches, ⅌ ℔.	26¢	23½¢

Enameled and Tea Kettles.......................See *Hollow-Ware*

Keys.
Lock Asso'n list Dec. 30, 1886.......dis 50&10 @ 60&5 %
Eagle, Cabinet, Trunk and Padlock.........dis 33⅓&2 %
Hotchkiss' Brass Blanks.......................dis 40 %
Hotchkiss' Copper and Tinned.......................dis 40 %
Hotchkiss' Padlock and Cabinet.......................dis 35 %
Ratchet Bed Keys.......................⅌ doz $4.00, dis 15 %

Knife Sharpeners.
Parkin's Applewood Handles......⅌ doz $6.00, dis 40 %
Parkin's Rosewood or Cocobolo...⅌ doz $9.00, dis 40 %

Knives.
Wilson's Butcher Knives.......................dis 20 @ 25 %
Ames' Butcher Knives.......................dis 25 %
Nichols' Butcher Knives.......................dis 40&10
Ames' Shoe Knives.......................dis 20@25 %
Ames' Bread Knives...........⅌ doz $1.50, dis 15 @ 20 %
Moran's Shoe and Bread Knives.......................dis 20 %
Hay and Straw.......................See Hay Knives
Table and Pocket.......................See Cutlery

Knobs.
Door Mineral.......................65@68¢
Door Por. Jap'd.......................75@78¢
Door Por. Por. Nickel.......................$2.00 @ 2.25
Door Por. Plated, Nickel.......................$2.00 @ 2.25
Drawer, Porcelain ....dis 55&10&10@60&10&10 %
Hemacite Door Knobs, new list.........dis 40&10@50 %
Yale & Towne Wood Knobs, list Dec., 1885 ....dis 40 %
Furniture Plain.......................75¢ gross inch. dis 10 %
Furniture, Wood Screws.......................dis 25&10 %
Base, Rubber Tip.......................dis 70&10&5 %
Picture, Judd's.......................dis 60&10&10 @ 70 %
Picture, Sargent's.......................dis 66⅔&10 %
Picture, Hemacite.......................dis 35&5 %
Shutter, Porcelain.......................dis 65&10 %
Carriage, Japanned ....⅌ gross 80¢, dis 60&10 %

Ladles.
Melting, Sargent's.......................dis 55&10 %
Melting, Reading.......................dis 35&10%
Melting, Monroe's Patent.......⅌ doz. $4.00, dis 40%
Melting, P. S. & W.......................dis 35&10 @ 40%
Melting, Warner's.......................dis 30%

Lawn Mowers.
Standard List.......................dis 50&10 %
Enterprise.......................dis 60&10 %

Lanterns.
Tubular, Plain, with Guards.....⅌ doz $4.00 @ $4.25
Tubular, Lift Wire, with Guards...⅌ doz $4.50 @ $4.75
Tubular, Square Plain, with Guards, ⅌ doz $4.00 @ $4.25
Tubular, Sq. Lift Wire, with Guards, ⅌ doz $4.25 @ $4.50
Without Guards, 25¢ ⅌ dozen less.
Police, Small, $6.00; Med. $7.25; Large, $9.75. dis 20@25%

Lemon Squeezers.
Porcelain Lined, No. 1.........⅌ doz. $6.00, dis 25&30 %
Wood, No. 2.......................⅌ doz. $3.00, dis 35 %
Wood, Common.......................⅌ doz $1.70 @ 1.75
Dunlap's Improved.......................⅌ doz. $3.75, dis 20 %
Sammis'......No. 1, $5; 2, $9; 12, $18 ⅌ doz. dis 25&10 %
Jennings' "Star".......................⅌ doz $2.50
The "Boss".......................⅌ doz $2.50
Dean's...............Nos. 1, ⅌ doz $6.50; 2, $3.35; 3, $1.90
Little Giant.......................dis 50 @ 50&5 %
King.......................dis 40&5 %

Lines.
Cotton and Linen Fish, Draper's.......................dis 50 %
Draper's Chalk.......................dis 60 %
Draper's Mason's Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25..dis 25 %
Cotton Chalk.......................dis 55 %
Samson, Cotton, No. 4, $2; No. 4½, $2.50........dis 10 %
Silver Lake, Braided, Nos. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ⅌ gross.......................dis 25 %
Masons' Linen, No. 3½, $1.50; No. 4, $2; No. 4½, $2.50
Masons' Colored Cotton.......................dis 45
Wire Clothes, No. 18, $3.60; No 19, $3.00; No. 20, $2.50.
Ventilator Cord, Samson Braided, White or Drab Cotton.......................$7.50 ⅌ doz. dis 20%

Locks, Padlocks, Cabinet Locks, &c.
Door Locks, Latches, &c.—
List, Dec. 30, '86, chgd Feb. 2, '87...dis 50&10 @ 60&5 %
Note.—Lower net prices often made.
Sargent & Co. (list Feb. 1, 1888).........dis 50&10&2 %
Reading Hardware Co. (list Feb. 2, '88). dis 55@60&10 %
Livingston & Co.......................dis 70 %
Perkins' Burglar Proof.......................dis 60&25 %
Plate.......................dis 33⅓&2 %
F. Many's "Extension Cylinder".......$10.50 ⅌ doz
Barnes Mfg. Co.......................dis 40 %
Yale Corrugated Key.......................dis 33⅓ %
Dietz Flat Key.......................dis 30 %
L. & C. Round Key Latches.......................dis 30&10 %
L. & C. Flat Key Latches.......................dis 33⅓&10 %
Romer's Night Latches.......................dis 15 %
Yale new list.......................dis 33⅓ %
"Shepardson" or "U. S.".......................dis 35%
"Felter" or "American".......................dis 40&10 %
Seed's N. Y. Hasp Lock.......................dis 25 %
Cabinet—
Eagle, Gaylord Parker and Corbin, } List March, '84, revised Jan. 1, '85. dis 33⅓&2 %
Deitz, Nos. 36 to 39.......................dis 40 %
Deitz, Nos. 51 to 63.......................dis 40 &10 %
Dietz, Nos. 86 to 96.......................dis 30 %
Stoddard Lock Co.......................dis 30 @ 33⅓ %
"Champion" Night Latches.......................dis 40 %
Barnes Mfg. Co.......................dis 40 %
Eagle and Corbin Trunk.......................dis 25&2 %
"Champion" Cabinet and Combination....dis 33⅓ %
Yale.......................dis 33⅓ %
Romer's.......................dis 25 %
Padlocks—
List, Dec. 23, 84.......................dis 70 @ 70&10 %
Yale Lock Mfg. Co. s.......................dis 33⅓ %
Eagle.......................dis 25&2 %
Eureka, Eagle Lock Co.......................dis 40&2 %
Romer's, Nos. 0 to 91.......................dis 30 %
Romer's Scandinavian, &c, Nos. 100 to 505...dis 15 %
A. E. Dietz.......................dis 40 %
"Champion" Padlocks.......................dis 40 %
Hotchkiss.......................dis 30 %
"Star".......................dis 45 %
"Horse Shoe," ⅌ doz., $9.......................dis 40 %
Barnes Mfg. Co.......................dis 40 %
Nock's.......................dis 30 %
Brown's Patent.......................dis 25 %
Scandinavian.......................dis90 %
Fraim's Pat. Scandinavian new list (low)....dis 60 %

Lumber Tools.
Ring Peavies, "Blue Line" Finish..........⅌ doz $20.00
Ring Peaves, Common Finish.............⅌ doz $18.00
Steel Socket Peavies.......................⅌ doz $21.00
Mall. Iron Socket Peavies.......................⅌ doz $19.00
Cant Hooks, "Blue Line" Finish.......................⅌ doz $16.00
Cant Hooks, Common Finish.......................⅌ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.......................⅌ doz $16.00
Cant Hooks, Mall. Socket Clasp Common Finish.......................⅌ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Fin. ⅌ doz $14.00
Cant Hooks, Clip Clasp, Common Finish..⅌ doz $12.00
Hand Spikes.................⅌ doz 6 ft., $15.00; 8 ft., $20

Pike Poles, Pike & Hook,	12 ft.	14 ft.	16 ft	18 ft.	20 ft.
⅌ doz.	$11.50	12.50	14.50	17.50	21.50
Pike Poles, Pike only, ⅌ doz.	10.00	11.00	13.00	16.00	20.00
Pike Poles, not Ironed, ⅌ doz.	6.00	7.00	9.00	12.00	16.0
Setting Poles, ⅌ doz.	14.00	15.00	17.00	....	....

Swamp Hooks.......................⅌ doz $18.00
Landing Blocks.......................⅌ doz $22.50
Skidding Tongs.......................⅌ doz $51.00
Log Binders.......................⅌ doz $26.00
Bended Boot Calks, 1 to 5 M, dis 25 %; 5 to 10 M, dis 30 %
Square Steel Boot Calks.......................dis 40 %
Chain Rafting Dogs.......................⅌ 100 $12.50
Ring Rafting Dogs...⅌ 100, med., $10.00; large, $12.00
Timber Grapples.......................⅌ doz $30.00

Lustre.
Four-ounce Bottles..........⅌ doz. $1.75 ⅌ gro. $17.00

Mallets.
Hickory.......................dis 20&10@20&10&10 %
Lignumvitæ.......................dis 20&10@20&10&10 %
B. & L. Block Co, Hickory and L. V....dis 30 @ 30&10

Match Safes.
Dangerfield's Self-Igniting.......................⅌ doz $1.22

Mattocks.—Regular list....dis 60&10 @ 60&10 &5

Meat Cutters

Dixon's—Nos.	1	2	3	4		
⅌ doz.	$14.00	17.00	19.00	30.00—dis 45 %		
Woodruff's	Nos.	100	150			
	⅌ doz.	$15.00	18.00—dis 45			
Champion	Nos.	200	300	400		
	⅌ doz.	$22.00	27.00	40.00—dis 45		
Hales' Pattern Nos.	11	12	13			
⅌ doz.	$27.00	33.00	45.00	dis 70 & 5 %		
American						dis
Nos.	1	2	3	4B		
Each	$5.00	7.00	10.00	25.00	50.00	60.00
Enterprise						dis 3.
Nos.	10	12	22	32	42	
Each	$3.	2.50	4.00	6.00	15.00	

Pennsylvania.....dis 40&10%

Nos.	1	2	3	00
₱ doz.	$24.00	28.00	36.00	28.00

Miles' Challenge...Nos. 1 2

₱ doz. $22.00 30.00 40.00—dis 45&45&10 %

Home No. 1.....$26 ₱ doz, dis 55&10 %

Draw Cut...Nos.. 5 2 6 8

Each....$50.00 75.00 80.00 225.00—dis 20 @ 25 %

Beef Shavers (Enterprise Mfg. Co.)...dis 20&10 @ 30 %

Chadborn's Smoked Beef Cutter.....₱ doz, $66.00

Mincing Knives.

Am. (3d quality), ₱ gro, 1 blade, $7; 2 blades, $12; 3 blades, $15.....net

Lothrop's.....dis 20&10 %

Smith's, ₱ doz, Single, $2.00; Double, $3....dis 40&45 %

Knapp & Cowles.....dis 50&10&60 %

Buffalo Adjustable.....₱ doz $3.00, dis 25 %

Molasses Gates.—Stebbins' Pat..dis 70&70 & 7½ %

Stebbins' Genuine.....dis 60&10&10 %

Stebbins' Tinned Ends.....dis 40&10 %

Chase's Hard Metal.....dis 50&10 %

Bush's.....dis 20 %

Lincoln's Pattern.....dis 60%&10 %

Weed's.....dis 20&10 %

Sess Nos.. 1 2 3 4

$7.00 8.00 9.00 10.00. ₱ doz, dis 60&10&10 %

Money Drawers.—₱ doz., $18 @ $20.

Muzzles.—Safety, ₱ doz. $3.....dis 25 %

Nails.....See Trade Report

Wire Nails & Brads, list July 14, '87..dis 70@70&5 %

Wire Nails, Standard Penny.....₱ keg, $2.55 @ $2.65

Nail Puller.—Curtiss Hammer...₱ doz $9.00 net

Giant, No. 1.....₱ doz $30.00, dis10 %

Pelican.....₱ doz $9.00. dis 25 %

Boss.....₱ doz $30, dis 30 %

Nail Sets.—Square.....₱ gro., $4.00 @ $4.25

Round.....₱ gro., $3.25

Cannon's Diamond Point.....₱ gro. $12 dis 20 %

Nut Crackers.

Table (Humason & Beckley Mfg. Co.).....dis 40 %

Blake's Pattern.....₱ doz $3.00. dis 10 %

Turner & Seymour Mfg. Co.....dis 50 %

Nuts.

Nuts, all kinds, 5½¢ off list Jan. 1, 1888.

In lots less than 100 ℔, ₱ ℔, add ½¢, 1 ℔ boxes add 1¢ to list.

Oakum

Government.....₱ ℔ 8¢

U. S. Navy.....₱ ℔ 7¢

Navy.....₱ ℔ 6¢ @ 6½¢

Oilers.—Zinc and Tin.....dis 65 @ 65&10 %

Brass and Copper.....dis 50&10@50&10&5 %

Malleable, Hammers' Improved, No 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz.....dis 10 @ 10&10 %

Malleable, Hammers, Old Pattern, same list....dis 40 %

Prior's Patent or "Paragon" Zinc.....dis 60&10&10 %

Prior's Patent or "Paragon" Brass.....dis 50 %

Oilmstead's Tin and Zinc.....dis 60 %

Oilmstead's Brass and Copper.....dis 50 %

Broughton's Zinc.....dis 60 %

Broughton's Brass.....dis 50 %

Packing, Steam.

Rubber—

Standard.....dis 60&10 @ 60&10&10 %

Extra.....dis 50&10 @ 60 %

N. Y. B. & P. Co., Standard.....dis 50&10&5 %

N. Y. B. & P. Co., Empire.....dis 70 %

N. Y. B. & P. Co., Salamander.....₱ ℔ 65¢, dis 30 %

Jenkins' Standard.....₱ ℔ 80¢, dis 35 %

Miscellaneous—

American Packing.....10¢ @ 11¢ ₱ ℔

Russia Packing.....14¢ ₱ ℔

Italian Packing.....13 @ 14¢ ₱ ℔

Cotton Packing.....15 @ 17¢ ₱ ℔

Jute.....7 @ 8¢ ₱ ℔

Padlocks.—See Locks.

Pails.

Galvanized Iron—

Quarts	10	12	14
Hill's Light Weight, ₱ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ₱ doz.	3.00	3.25	3.75
Whiting's	2.75	3.00	3.25
Sidney Shepard & Co	2.67		3.33
Iron Clad	2.75	3.00	3.25
Fire Buckets	2.75	3.25	3.50

Buckets, see Well Buckets

Indurated Fibre Ware—

Star Pails, 12 qt.....₱ doz $4.50

Fire, Stable and Milk, 14 qt.....₱ doz $5.50

Pencils Faber's Carpenters.....high list dis 50 %

Faber's Round Gilt.....₱ gro $5.25 net

Dixon's Lead.....₱ gro $4.50 net

Dixon's Lumbago.....₱ gro $6.75 net

Dixon's Carpenters'.....dis 40&10 %

Picks.

Railroad, 5 to 6, $12.00; 6 to 7, $13, dis 60&10@60&10&5 %

Adze Eye, 5 to 6, $12.00; 6 to 7, $13, dis 60&10@60&10&5 %

Picture Nails.

Brass Head, Sargent's list.....dis 50&10&10 %

Brass Head, Combination list.....dis 50&10 %

Porcelain Head, Sargent's list.....dis 50&10&10 %

Porcelain Head, Combination list.....dis 40&10 %

Miles' Patent.....dis 40 %

Pinking Irons.....₱ doz 65¢ net

Pipe, Wrought Iron.—List March 23, 1887.

1¼ and under, Plain.....dis 57½ %

1¼ and under, Galvanized.....dis 47½ %

1½ and over, Plain.....dis 67½ %

1½ and over, Galvanized.....dis 5-½ %

Boiler Tubes, Iron.....dis 55 %

Planes and Plane Irons.

Wood Planes—

Moulding.....dis 50 @ 50&5 %

Bench, First Quality.....dis 50&10 @ 60 %

Bench, Second Quality.....dis 60&10 %

Bailey's (Stanley R. & L. Co.).....dis 30&10 %

Iron Planes—

Bailey's (Stanley R. & L. Co.)...dis 30&10@30&10&5 %

Miscellaneous Planes (Stanley R. & L. Co.).dis 20&10 %

Victor Planes (Stanley R. & L. Co.)...dis 20&10 %

Steer's Iron Planes.....dis 35 @ 35&5 %

Meriden Mal. Iron Co.'s.....dis 30&10@30&10&10 %

Davis's Iron Planes.....dis 30&10@30&10&10 %

Birmingham Plane Co.....dis 50@50&5 %

Gage Tool Co.'s Self-Setting.....dis 20 %

Chaplin's Iron Planes.....dis 40 @ 40&5 %

Plane Irons—

Plane Irons.....dis 20&10 %

Plane Irons, Butcher's.....$5.00 @ $5.25 to 2

Plane Irons, Buck Bros.....dis 30 %

Plane Irons, Auburn Tool Co., "Thistle"....dis 40 %

Plane Irons, Middleses Mfg. Co., "Baldwin Iron," Single and Cut.....dis 20 @ 25 %

Double.....dis 33⅓ @ 40 %

L. & I. J. White.....dis 25 %

Pliers and Nippers.

Button's Patent.....dis 30&10 @ 40 %

Hall's Pat. Compound Lever Cutting Nippers, No. 2 5 in., $13.50; No. 4, 7 in., $21.00 ₱ doz.dis 20&10@33⅓&5 %

Gumason & Beckley Mfg. Co.....dis 50@50&5 %

Gas Pliers.....dis 60 %

Gas Pliers, Custer's Nickel Plated.....dis 60&5 %

Eureka Pliers and Nippers.....dis 40 %

Russell's Parallel.....dis 25 %

P. S. & W. Cast Steel.....dis 50 %

P. S. & W. Tinners' Cutting Nippers....add 6 % dis 10 %

Carew's Pat. Wire Cutters.....dis 20 %

Morrill's Parallel, per doz., $12.....dis 30&5 %

Cronk's 8 in., $15; 10 in., $21.....dis 40 @ 40&5 %

Plumbs and Levels.

Regular List.....dis 70&10@70&10&10 %

Disston's.....dis 45&10 %

Pocket Levels.....dis 70&10@70&10&10 %

Davis Iron Levels.....dis 30 %

Davis' Inclinometers.....dis 10&10 %

Poppers, Corn.

Round or Square, 1 qt.....₱ gro $10.50 @ $12

Round or Square, 2 qt.....₱ gro $23.50 @ $24

Post Hole and Tree Augers and Diggers.

Samson Post Hole Digger....₱ doz $36.00, dis 25&10 %

Fletcher Post Hole Augers.....₱ doz $36.00. dis 20 %

Eureka Diggers.....₱ doz $16 @ $17

Leed's.....₱ doz $8.00 @ $9.00

Vaughan's Post Hole. Auger, per doz....$13.00 @ $14.00

Kohler's Little Giant.....₱ doz $18.00

Kohler's Hercules.....₱ doz $15.00

Kohler's New Champion.....₱ doz $9.00

Schneidler.....doz $16 @ $18

Ryan's Post Hole Diggers.....₱ doz $24

Cronk's Post Bars.....doz $00, dis 50&5 @ 50&10 %

Gibb's Post Hole Digger, ₱ doz $30....dis 40 @ 40&10 %

Potato Parers.

White Mountain.....₱ doz $5.00 @ 5.50

Antrim Combination.....₱ doz $8.00

Hoosier.....₱ doz $13.50

Pruning Hooks and Shears.

Disston's Combined Pruning Hook and Saw, ₱ doz $18.00.....dis 20&10 %

Disston's Pruning Hook.....₱ doz $12.00, dis 20&10 %

E. S. Lee & Co.'s Pruning Tools.....dis 40 %

Pruning Shears, Henry's Pat....₱ doz $3.75 @ $4.00 net

Henry's Pruning Shears.....₱ doz $4.25 @ $4.50 net

Wheeler, M. & Co.'s Combination...₱ doz $12, dis 20 %

Dunlap's Saw and Chisel.....₱ doz $8.50, dis 30 %

J. Mallinson & Co.....No. 1, $5.25; No. 2, $7.25

Pulleys.—Hot House, Awning, &c.....dis 60&10 %

Japanned Screw.....dis 60&10 %

Brass Screw.....dis 60&10 %

Japanned Side.....dis 66⅔&10 %

Japanned Clothes Line.....dis 60&10 %

Empire Sash Pulley.....dis 55 @ 60 %

Moore's Sash, Anti Friction.....dis 50 %

Hay Fork, Solid Eye, $4.00; Swivel, $4.50 { dis 50&10 @ 50&10&5 %

Hay Fork, "Anti-Friction," 5 in. Solid, $5.70...dis 50 %

Hay Fork, "P" Common and Pat. Bushed.....dis 20 %

Hay Fork, Tarbox Pat. Iron.....dis 20 %

Hay Fork, Reed's Self-Lubricating.....dis 60 %

Shade Rack.....dis 45 %

Tackle Blocks.....See Blocks

Pumps.—Cistern, Best Makers.....dis 50 @ 10&60 %

Pitcher Spout, Best Makers...dis 60&10 @ 60&10&10 %

Pitcher Spout, Cheaper Goods...dis 70&5 @ 70&10&5 %

Punches.

Saddlers' or Drive, good quality.....₱ doz 60¢ @ 65¢

Semis & Call Co.'s Cast Steel Drive.....dis 50&5 %

Semis & Call Co.'s Springfield Socket.....dis 50&5 %

Spring, good quality.....₱ doz $2.50 @ $2.60

Spring, Leach's Patent.....dis 15 %

Semis & Call Co.'s Spring and Check.....dis 40 %

Solid Tinners'.....₱ doz $1.44, dis 55 %

Tinners' Hollow Punches.....dis 30&2 %

Rice Hand Punches.....dis 15 %

Rail.

Sliding Door, Wrt. Brass, ₱ ft 35¢.....dis 15 %

Sliding Door, Bronzed Wrt. Iron.....₱ foot 7¢

Sliding Door Iron, Painted....₱ foot 4¢, dis 20&10&5 %

Barn Door, Light....Inch. ½ ¾

Per 100 feet.....$2.50 3.00 4.40—dis 10 %

4 to 6 for N. E. Hangers—

	Small.	Med.	Large
Per 100 feet	$2.15	2.70	3.25 net

Terry's Wrought Iron, ₱ foot.....4½¢ @ 5¢

Victor rack Rail, 7¢ ₱ foot.....dis 50&2 %

Carrick Steel Rail, per foot.....4½¢

Ranges.

Cast Steel.....dis 65&5 @ 70 %

Malleable.....dis 70 @ 70&5 %

Gibbs Lawn Rake.....$12, dis 40 %

Canton Lawn Rake.....dis 30 @ 40 %

Ft. Madison Prize Bow Brace and Peerless..dis 40&5 %

Fort Madison Steel Tooth Lawn Rake, $6.....dis 25 %

Razors.—J. R. Torrey Razor Co.....dis 20%

Wostenholme and Butcher.....$10 to $, dis 10 %

Razor Strops.

Genuine Emerson.....dis 60 @ 60&5 %

Imitation Emerson.....₱ doz $2.00, dis 30&10&5 %

Torrey's.....dis 20 %

Badger's Belt and Combination.....₱ doz $2

Lamont Combination.....₱ doz $4

Rivets and Burrs.

Copper.....dis 50 @ 50&10 %

Iron, list November 17, 1887.....dis 50 %

Rivet Sets.....dis 50&2 @ 50&10 %

Rods.—Stair, Brass.....dis 20&2 %

Stair Black Walnut.....₱ doz 40¢

Rollers.

Barn Door, Sargent's list.....dis 60&10&10 %

Acme (Anti-Friction).....dis 55 %

Union Barn Door Roller.....dis 70 %

Rope.—Manufacturers' prices for large lots.

Manila	¼ inch and larger ₱ ℔	10¾¢ net
Manila	⅜ inch ₱ ℔	11½¢ net
Manila	⅜ and 5-16 inch ₱ ℔	11½¢ net
Manila Tarred Rope	₱ ℔	10½¢ net
Manila, Hay Rope	₱ ℔	10½¢ net
Sisal	¼ inch and larger ₱ ℔	8½¢ net
Sisal	⅜ inch ₱ ℔	9½¢ net
Sisal	⅜ and 5-16 inch ₱ ℔	9½¢ net
Sisal, Hay Rope	₱ ℔	8½¢ net
Sisal Tarred Rope	₱ ℔	8½¢ net
Sisal, Medium Lath Yarn	₱ ℔	7½¢ net

Discount 1¾ % for cash in 10 days.

Cotton Rope.....₱ ℔ 15 @ 18¢ net

Jute Rope.....₱ ℔ 7¢

Rules.

Boxwood.....dis 80&10 @ 80&10&10 %

Ivory.....dis 50 @ 50&10 %

Sad Irons.

From 4 to 10, at factory.... ₱ 100 ₱ $2.50 @ $2.65

Self-Heating.....₱ doz. $9.00 net

Self-Heating, Tailors'.....₱ doz. $18.00 net

Gleason's Shield and Toilet.....dis 25 %

Mrs. Pott's Irons.....dis 40@40&5 %

Enterprise Star irons, new list, July 20, 1882....dis 40 %

Combined Fluter and Sad Iron...₱ doz. $15.00, dis 15 %

Fox Reversible, Self-Fluter.....₱ doz., $24.00 net

Chinese Laundry (N. E. Butt Co.).....8½¢, dis 15 %

New England.....5¢, dis 15 %

Mahony's Troy Pol. Irons.....dis 25 %

Sand and Emery Paper and Cloth.

List April 19, 1886.....dis 20@20&5 %

Sibley's Emery and Crocus Cloth.....dis 30 %

Sash Cord.

Common.....₱ ℔, 10¢ @ 11¢

Patent, good quality.....₱ ℔, 13¢ @ 13½¢

White Cotton Braided, fair quality.....₱ ℔ 28¢ @ 29¢

Common Russia Sash.....₱ ℔ 13½¢

Patent " " .....₱ ℔ 16¢

Cable Laid Italian " .....₱ ℔ 22¢ @ 23¢

India Cable Laid " .....₱ ℔ 13¢

Silver Lake, A Quality, White.....50¢, dis 10&10&5 %

Silver Lake, A Quality, Drab.....55¢, dis 10&10&5 %

Silver Lake, B Quality, White.....50¢, dis 20&10&5 %

Silver Lake, B Quality Drab.....50¢, dis 20&10&5 %

Silver Lake, C Quality. White (only).....27¢ @ 28¢

Sylvan Spring, Extra Braided, White.....34¢

Sylvan Spring, Extra Braided, Drab.....30¢

Semper Idem, Braided, White.....30¢

Egyptian, India Hemp, Braided.....25¢

Samson, Braided, White Cotton....50¢ dis 30 @ 30&5 %

Samson, Braided, Drab Cotton....55¢ dis 30 @ 30&5 %

Samson, Braided Italian Hemp....55¢ dis 30 @ 30&5 %

Samson, Braided Linen.....80¢ dis 30 @ 30&5 %

Sash Locks.

Clark's No. 1, $10.00; No. 2, $8.00 ₱ gross.....dis 33⅓ %

Ferguson's.....dis 33⅓ %

Morris and Triumph, list Aug. 10, 1886.....dis 60&2 %

Victor.....60&10&3 %

Walker's.....dis 10 %

Attwell Mfg. Co.....dis 25 @ 33⅓ %

Reading.....dis 60%&10 @ 60%&10&10 %

Hammond's Window Springs.....dis 40 %

Common Sense, Jap d. Cop'd and Br'zed..₱ gross $4.20

Common Sense, Nickel Plated.....₱ gross $10.00

Universal.....dis 30 %

Kempshall's Gravity.....dis 60 %

Kempshall's Model.....dis 60@60&10 %

Corbin's Daisy, list February 15, 1886.....dis 70 %

Payson's Perfect.....dis 60 @ 60&10 %

Hugunin's New and Improved Adjustable Sash Balances, list Jan. 5, 1887.....dis 25&5&2 %

Hugunin's New Sash Locks, list Jan. 5, '87.dis 25&5&2 %

Stoddard "Practical".....dis 10 %

Yves Patent.....dis 60 %

Lieseche's Nos. 100 & 110. ₱ gro. $8; 105, $10.dis 20&10 %

Davis, Bronze, Barnes Mfg. Co.....dis 50 %

Champion Safety, List March 1, 1888....dis 55@55&5 %

Sash Weights.

Solid Eye.....₱ ton. $25

Sausage Stuffers or Fillers.

Miles' "Challenge".....₱ doz. $20, dis 50@50&5 %

Perry.....No. 0, $21; No. 1, $15: No. 0, $21, dis 50@50&5 %

Draw Cut No. 4.....each, $30.00, dis 20 %

Enterprise Mfg Co.....dis 20&10 @ 30 %

Silver.....dis 40&10 %

Saws.

Disston's Circular....dis 45@45&5 %) Extras some-

Disston's Cross Cuts.dis 45@45&5 %) times given by

Disston's Hand.....dis 25@25&5 %) jobbers.

Atkins' Circular.....dis 50 %

Atkins' Silver Steel Diamond X Cuts.....₱ foot 70¢

Atkins' Special Steel Dexter X Cuts.....₱ foot 50¢

Atkins' Special Steel Diamond X Cuts.....₱ foot 30¢

Atkins' Champion and Electric Tooth X Cuts.....₱ foot 27 @ 28¢

Atkins' Hollow Back X Cuts.....₱ foot 18¢

Atkins' Shingle, Mulay, Drag, &c.....dis 45 %

W. M. & C., Hand.....dis 30&5 @ 30&10 %

W. M. & C. Champion X Cuts. Regular ₱ foot .24@26¢

W. M. & C. X Cuts. Thin Back.....₱ foot 27¢@29¢

Peace Circular and Mill.....dis 45&10 %

Peace Hand Panel and Rip....dis 20&10 @ 20&10&10 %

Peace Cross Cuts, Standard.....₱ foot 26¢

Peace Cross Cuts, Thin Back.....₱ foot 27¢@28¢

Richardson's Circular and Mill.....dis 45 @ 45&10 %

Richardson's X-Cuts, No. 1, 29¢; No. 2, 27¢; No. 3, 24¢

Hack Saws—

Griffin's Hack Saws, complete.....dis 40&10 @ 50 %

Griffin's Hack Saw, Blades only.....dis 40&10 @ 50 %

Star Hack Saws and Blades.....dis 25 %

Diamond Hack Saws and Blades.....dis 25 %

Eureka and Crescent.....dis 25 %

Saw Frames.

White Vermont.....₱ gro $9 @ $10

Red, Polished, and Varnished....₱ doz $1.50, dis 25 %

Saw Sets.

Stillman's Genuine....₱ doz $5.00 and $7.75, dis 40&5 %

Stillman's Imita..₱ doz $3.25 and $5.25, dis 40&5@40&10 %

Common Lever.....₱ doz $2.00, dis 40&5 %

Morrill's No. 1, $15.00; Nos. 3 & 4, $24....dis 40&10@50 %

Leach's.....No. 0, $3.00; No. 1, $15.00, dis 15 @ 20 %

Nash's.....dis 20&10 @ 20&10&10 %

Hammer, Hotchkiss.....$5.50, dis 10 %

Hammer, Bemis & Call Co.'s new Patent....dis 30&5 %

Bemis & Call Co.'s Lever and Spring Hammer.dis 30&5 %

Bemis & Call Co.'s Plate.....dis 10 %

Bemis & Call Co.'s Cross Cut.....dis 12½ %

Aiken's Genuine.....$13.00, dis 50&10 %

Aiken's Imitation.....$7.00, dis 50&5 %

Hart's Patent Lever.....dis 50&10 %

Disston's, Star, 26, No. 15, $5.50..dis 20&10@30&10&10 %

Atkins' Lever.....per doz No. 1, $6.00; No. 2, $9.60

Atkins' Criterion.....per doz $7.50

Croissant (Keiler), No. 1, $15.00; No. 2, $24.00..dis 33⅓&10 %

Saw Tools.

Atkins Perfection.... $15.00; Excelsior $6.00 ₱ doz

Scales.

Hatch, Counter, No. 171, good quality.....₱ doz $31

Hatch, Tea, No. 161.....₱ doz $6.75 @ $7.00

Union Platform, Plain.....$2.30 @ $2.35

Union Platform, Striped.....$2.40 @ $2.50

Chatillon's Grocers' Trip Scales.....dis 50 %

Chatillon's Eureka.....dis 25 %

Chatillon's Favorite.....dis 40 %

Family, Turnbull's.....dis 30@30&10 %

Scale Beams.

Scale Beams, List of Jan. 12, 82..dis 50&10@50&10&5 %

Scale Beams, Custer.....dis 30@33⅓ %

Chatillon's No. 1.....dis 40 %

Chatillon's No. 2.....dis 50 %

Scrapers.

Adjustable Box Scraper (E. R. & L. Co.)..$6.50, dis 30&10 %

Box, 1 Handle.....₱ doz $4.00, dis 10 %

Box, 2 Handle.....₱ doz $6.00, dis 10 %

Defiance Box and Ship.....dis 20&10 %

Foot.....dis 50&10@60 %

Ship, Common.....₱ doz $5.50 net

Ship, Providence Tool Co.....dis 10 %

Screen Window and Door Frames.

Porter's Pat. Window and Door Frame...dis 33⅓&10 %

Screen Corner Irons. Warner's....dis 33⅓ @ 33⅓&10 %

Stearns' Frames and Corners.....dis 25 @ 25&10 %

Screw Drivers.

Douglas Mfg Co.....dis 20&10&10 %

Disston's.....dis 45&10 %

Disston's Patent Excelsior.....dis 45&10 %

Buck Bros.....dis 30 %

Stanley R. & L. Co.'s Varnished Handles....dis 65&10 %

Stanley R. & L. Co.'s Black Handles.....dis 60&10 %

Sargent & Co.'s No. 1 Forged Blade....dis 70&10&10 %

Sargent & Co.'s No. 20.....dis 66⅔&10&10 %

Sargent & Co.'s Nos. 40 & 30, Cast Steel....dis 60&10 %

Sargent & Co.'s No. 60, Round Blade.....dis 70&10 %

Knapp & Cowles' No. 1.....dis 60&20 @ 70 %

Knapp & Cowles' No. 1 Extra.....dis 60 @ 60&10 %

Knapp & Cowles' No. 00 & 4.....dis 50&5 @ 50&10&5 %

Stearns'.....dis 25&10&5 %

Gay & Parsons.....dis 30 %

Champion.....dis 25 %

Clark's Patent.....dis 30 @ 33⅓&5 %

Crawford's Adjustable.....dis 30 %

Eilrich's Socket and Ratchet.....dis 25 @ 25&10 %

Allard's Spiral, new list.....dis 25 %

Kolb's Common Sense.....₱ doz $6. dis 25&10

Syracuse Screw-Driver Bits.....dis 30 & 30&5 %
Screw Driver Bits.....₩ doz. 50¢ @ 75¢
Screw Driver Bits, Parr's.....₩ gro 6.25
Fray's Hol. Hdle. Sets, No. 3, $12.....dis. 25 @ 25 & 10 %
P. D. & Co.'s, all Steel.....dis 50 %

Screws

Wood Screws—List, Brass, Jan 27; Iron, July 1, 1887

Flat Head Iron.....dis 70 %
Round Head Iron.....dis 65 %
Flat Head Brass.....dis 65 %
Round Head Brass.....dis 60 %
Flat Head Bronze.....dis 65 %
Round Head Bronze.....dis 60 %
} Ex. 10 % often given by jobbers.

Machine—
Flat Head, Iron.....dis 55 %
Round Head, Iron.....dis 50 %

Bench and Hand—
Bench, Iron.....dis 55&10 @ 55&10&10 %
Bench, Wood, Beech.....₩ doz $2.25
Bench, Wood, Hickory.....dis 20&10 %
Hand, Wood.....dis 25&10 @ 25&10&5 %
Lag, Blunt Point.....dis 75 @ 75&10 %
Coach and Lag, Gimlet Point.....dis 75 %
Bed.....dis 25&5 %
Hand Rail, Sargent's.....dis 66⅔&10 %
Hand Rail, Humason, Beckley & Co.'s..dis 70&10@75 %
Hand Rail, Am. Screw Co.....dis 75 %
Jack Screws, Millers Falls list.....dis 50 @ 50&5 %
Jack Screws, P. S. & W.....dis 35 %
Jack Screws, Sargent.....dis 60&10 @ 60&10&5 %
Jack Screws, Stearns'.....dis 40 @ 40&10 %

Scroll Saws.

Lester, complete, $10.00.....dis 25 %
Rogers, complete, $4.00.....dis 25 %

Scythe Snaths......dis 50&10 %

Shears.

American (Cast) Iron.....dis 75&10 @ 75&10&5 %
Pruning.....See Pruning Hooks and Shears
Barnard's Lamp Trimmers.....₩ doz $3.75
Tinners'.....dis 20&2½ %
Seymour's, List, Dec., 1881 dis 60&10&10@60&10&10&5 %
Heinsch's, List, Dec., 1881, dis 60&10&10@60&10&10&5 %
Heinsch's Tailor's Shears.....dis 33⅓ %
First quality C. S. Trimmers.....dis 80@80&10 %
Second quality C. S. Trimmers.dis 80&10@80&10&10 %
Acme Cast Shears.....dis 10&10 %
Diamond Cast Shears.....dis 10 %
Clipper.....dis 10&10 %
Victor Cast Shears.....dis 75&10@75&10&5 %
Howe Bros. & Hulbert, Solid Forged Steel.....dis 40 %
Cleveland Machine Co., Solid Steel Forged.....dis 70 %
Clauss Shear Co., Japanned.....dis 70 %
Clauss Shear Co., Nickeled, same list.....dis 60 %

Sheaves.

Sliding Door—
M. W. & Co., list Jan. 1, 1887. ....dis 50&10 @ 60&5 %
R. & E., list Dec. 18, 1885.....dis 55&2½ %
Corbin's list.....dis 60&10&2½ %
Patent Roller.....dis 60&10&2½ %
Patent Roller, Hatfield's.....dis 75 %
Russell's Anti-Friction, list Dec. 18, 1885..dis 60&2½ %
Moore's Anti-Friction.....dis 60 %

Sliding Shutter—
R. & E. list Dec. 18, 1885.....dis 60&10&2½ %
Sargent's list.....dis 60&10 %
Reading list.....dis 60&10&10 %

Ship Tools.

L. & I. J. White.....dis 20&5 %
Albertson Mfg. Co.....dis 25 %

Shoes, Horse, Mule, &c.

Horse—
Burden's, Perkins', Phœnix, at factory.....$4.00

Mule—Add $1 ₩ keg to above prices.

Ox, Wrought—
Ton lots.....₩ ₵ 9¢
1000 ℔ lots.....₩ ₵ 9½¢
500 ℔ lots.....₩ ₵ 10¢

Shot.—(*Eastern prices, 2½ off, cash, 5 days.*)

Drop, ₩ bag 25 ℔.....$1.25
Drop, ₩ bag, 5 ℔.....90
Buck and Chilled, ₩ 25-℔ bag.....$1.50
Buck and Chilled, ₩ 5-℔ bag.....35

Shovels and Spades.

Ames' Shovels, Spades, &c., list Nov. 1, 1885....dis 20 %
NOTE.—Jobbers frequently give 5 @ 7½ % extra on above.
Griffith's Black Iron.....dis 50&10 %
Griffith's C. S.....dis 60 @ 60&10 %
Griffith's Solid Cast Steel R. R. Goods.....dis 20 %
Old Colony (Sanford Fork & Tool Co).....dis 20 %
St. Louis Shovel Co.....dis 20 @ 20&7½ %
Hussey, Binns & Co.....dis 15 @ 25 %
Hubbard & Co.....dis 20@20&7½ %
Lehigh Mfg. Co.....dis 50&10 %
Payne Pettebone & Son, list January, 1886....dis 30 %
Remington's (Lowman's Patent).....dis 30&10 @ 40 %
Rowland's, Black Iron.....dis 50&10 %
Rowland's Steel.....dis 60&5 @ 60&10 %

Shovels and Tongs.

Iron Head.....dis 60&10@60&10&5 %
Brass Head.....dis 60&10&10 %

Skeins, Thimble.

Western list.....dis 75&5 @ 75&10 %
Columbus Wrt. Steel, list Nov. 1, 1887.....dis 20 %
Coldbrookdale Iron Co.....dis 5&10 %
Utica P. S. T. Skeins.....dis 60 %
Utica Turned and Fitted.....dis 35 %

Sieves.

Buffalo Metallic, S. S. & Co., new list..dis 50&25&10 %
Barler Flour Sifters.....₩ doz $2.00
Smith's Adjustable Sifters.....₩ doz $2.25
Smith's Adjustable Milk Strainer.....₩ doz $2.00
Smith's Adjustable F. & C. Strainer.....₩ doz $1.75

Sieves, Wooden Rim—	Iron.	Plated.
Mesh 18, Nested, ₩ doz.	70¢	90¢
Mesh 20, Nested, ₩ doz.	85¢	$1.00
Mesh 24, Nested, ₩ doz.	$1.00	1.10

Slates.—School, by case.....dis 50&10 %

Snaps, Harness, &c.

Anchor (T. & S. Mfg Co.).....dis 65 %
Fitch's (Bristol).....dis 50&10 %
Hotchkiss.....dis 10 %
Andrews.....dis 50 %
Sargent's Patent Guarded.....dis 70&10&10 %
German, new list.....dis 40&10 %
Covert.....dis 50&2½ %
Covert, New Patent.....dis 50&5&2½ %
Covert New R. E.....dis 50@2 %
Covered Spring.....dis 60&10&10 %

Soldering Irons.

Covert's Adjustable, list Jan. 1, 1886.....dis 35&2½ %

Spoke Shaves.—Iron.....dis 45 %
Wood.....dis 30 %
Bailey's (Stanley R. & L. Co.).....dis 40&10 %
Stearns'.....dis 20&10 @ 30 %

Spoke Trimmers.

Bonney's.....₩ doz $10.00, dis 50 %
Stearns'.....dis 20&10 %
Ives'.....No. 1, $16.00; No. 2, $12.00 ₩ doz, dis 55&10 %
Douglass'.....₩ doz $9.00, dis 20 %

Spoons and Forks.

Tinned Iron—
Basting, Central Stamping Co.'s list. dis 70@70&10 %
Solid Table and Tea, Central Stamping Company's list.....dis 70@70&10 %
Buffalo, S. S. & Co.....dis 33⅓&2½ %

Steel-Plated—4 mos. or 5 % cash 31 days.
Meriden Brit. Co., Rogers.....dis 50 %
C. Rogers & Bros.....dis 50 %
Rogers & Bro.....50 %
Reed & Barton.....dis 50 %
Wm. Rogers Mfg. Co.....dis 50 @ 50&10 %
Simpson, Hall, Miller & Co.....dis 50 @ 50&10 %
Holmes & Edwards Silver Co.....dis 50 @ 50&10 %
H. & E. Silver Co. Mexican Silver.....dis 50&5 %
H. & E. Silver Co., Durham Silver.....dis 50&5 %
German Silver.....dis 50 @ 50&5 %
German Silver, Hall & Elton.....dis 40&5 %
Nickel Silver.....dis 50&5@50&10&5 %, cash
Britannia.....dis 55 %
Boardman's Flat Ware.....dis 50&10 %) 4 mo.
Boardman's Nickel Silver.....dis 40&10 %)
Boardman's Brit'nia Spoons, case lots..dis 50&10 %)

Springs.

Elliptic, Concord, Platform and Half Scroll.....dis 60 @ 60&5 %
Cliff's Bolster Springs.....dis 25 %

Squares.

Steel and Iron.....
Nickel-Plated.....dis 75 @ 75&10&5 %
Try Square and T Bevels.....dis 60&10&10 @ 70 %
Disston's Try Square and T Bevels.....dis 45&10 %
Winterbottom's Try and Miter.....dis 30&10 %

Staples.

Fence Staples, Galvanized } Same price as Barb Wire.
Fence Staples, Plain..... } See Trade Report.

Steelyards......dis 40&10@50 %

Stocks and Dies.

Blacksmith's, Waterford Goods....dis 30&5 @ 30&10 %
Lightning Screw Plate.....dis 25 @ 30 %
Reece's New Screw Plates.....dis 33⅓ @ 33⅓&5 %

Stone.

Hindostan No. 1, 3¢; Axe, 5¾¢; Slips No. 1, 5¢.
Sand Stone.....₩ ℔, 2¢
Washita Stone, Extra.....₩ ℔, 1 @ 12¢
Washita Stone, No. 1.....₩ ℔, 15 @ 16¢
Washita Stone, No. 2.....₩ ℔, 11 @ 12¢
Washita Slips, No. 1. Extra.....₩ ℔, 40 @ 42¢
Washita Slips, No. 1.....₩ ℔, 30 @ 32¢
Arkansas Stone, No. 1, 4 to 6 in.....₩ ℔, $1.35
Arkansas Stone, No. 1, 6 to 9 in.....₩ ℔, $1.75
Turkey Oil Stone.....4 to 5 in., ₩ ℔, 40¢
Turkey Slips.....₩ ℔, $1.00 @ $1.50
Lake Superior, Chase.....₩ ℔, 16¢
Lake Superior Slips, Chase.....₩ ℔, 31@32¢
Seneca Stone, Red Paper Brand, ₩ ℔.....18 @ 20¢
Seneca Stone, High Rounds, ₩ ℔.....20 @ 25¢
Seneca Stone, Small Wheta, ₩ gro.....$24.00

Stove Polish.

Joseph Dixon's.....₩ gro $6.00, dis 10 %
Gem.....₩ gro $4.50, dis 10 %
Gold Medal.....₩ gro $6.00, dis 25 %
"Mirror".....₩ gro $6.00, dis — %
Lustro.....₩ gro $4.75 net
Ruby.....₩ gro $3.75 net
Rising Sun, gro. lots.....₩ gro $5.50
Dixon's Plumbago.....₩ ℔ 2¢ net
Boynton's Noon Day, ₩ gro.....$5.00
Parlor Pride Stove Enamel.....₩ gross, $13
Yates' Liquid, 2 3 5 10 gal. cans
₩ gal... $0.90 .80 .70 .60
Yates Standard Paste Polish ,10-lb cans, per lb., 15 ¢
Jet Black.....₩ gro $3.50
Japanese.....₩ gro $3.50
Fireside.....₩ gro $2.50
Diamond Gt. Enamel.....₩ gro $10.00

Tacks, Brads, &c.
List, Jan. 2, 1888.

American Iron Carpet Tacks.....dis 72½&10&2½ %
Steel Carpet Tacks.....dis 72½&10&2½ %
Swedes Iron Carpet Tacks.....dis 72½&10&2½ %
American Iron Cut Tacks.....dis 70&10&2½ %
Swedes Iron Tacks.....dis 67½&10&2½ %
Swedes Iron Upholsterers' Tacks..dis 67½&10&2½ %
Tinned Swedes Iron Tacks.....dis 67½&10&2½ %
Tin'd Sw'des Iron Uphol'ers' Tacks.dis 67½&10&2½ %
Gimp and Lace Tacks.....dis 67½&10&2½ %
Tinned Gimp and Lace Tacks.....dis 67½&10&2½ %
Swedes Iron Trimmers' Tacks.....dis 67½&10&2½ %
Swedes Iron Miners' Tacks.....dis 67½&10&2½ %
Swedes Iron Bill Posters' or Railroad Tacks.....dis 67½&10&2½ %
Swedes Steel Tacks, all kinds (Swedes Iron price list).....dis 72½&10&2½ %
Copper Tacks.....dis 33⅓&10&2½ %
Copper Finishing Trunk and Clout Nails.....dis 33⅓&10&2 %
Finishing Nails.....dis 60&10&2 %
Trunk and Clout Nails.....dis 60&10&2 %
Tinned Trunk and Clout Nails.....dis 60&10&2 %
Basket Nails.....dis 60&10&2 %
Common and Patent Brads.....dis 60&10&2 %
Hungarian Nails.....dis 60&10&2 %
Chair Nails.....dis 60&10&2 %
Zinc Glaizers' Points.....dis 40&10&2 %
Cigar Box Nails.....dis 45&10&2 %
Picture-Frame Points.....dis 45&10&2 %
Looking-Glass Tacks.....dis 45&10&2 %
Leathered Carpet Tacks.....dis 45&10&2 %
Brush Tacks.....dis 45&10&2 %
Shoe Finders'.....List Jan. 2, 1888, dis 10 @ 10&5 %
Lining and Saddle Nails, List Jan. 1, 1886:
Silvered.....dis 30&10&10 %
Japanned.....dis 20&10&10 %
Double-pointed Tacks.....85 %
Wire Carpet Nails.....dis 50&10 %
Wire Brads and Nails.....See Nails, Wire
Steel Wire Brads, M. & E. Mfg. Co.'s list.....dis 50&10 %

Extra 10@10&5 % generally given.

Tap Borers.—Common and Rose.....dis 20&10 %
Ives' Tap Borers.....dis 33⅓&5 %
Enterprise Mfg. Co.....dis 20&10 @ 30 %
Clark's.....dis 33⅓ @ 35 %

Tapes, Measuring.—American.....dis 25&10 %
Spring.....dis 40 %
Chesterman's.....Regular list dis 25 @ 30 %

Thermometers.—Tin Case.....dis 30 @ 30&10 %

Thimble Skeins.—See Skeins.

Ties, Bale.

Steel Wire, Standard list.....dis 50&10&5 %

Tinners' Shears, &c.

Shears and Snips (P. S. & W.).....dis 20 @ 25
Punches—See Punches.
Snips, J. Mallinson & Co.....dis 33⅓ %

Tinware.

Stamped, Japanned & Pieced, list Jan. 20, 1[illegible].....dis 70&10 @ 70&10&5 %

Tire Benders, Upsetters, &c.

Stoddard's Lightning Tire Upsetters.....dis 15 %
Detroit Perfected Tire Bender.....dis 15 %

Tobacco Cutters.

Enterprise Mfg. Co. (Champion).....dis 20&10 @ 40 %
Wood Bottom.....₩ doz $5.00 @ $5.25
All Iron.....₩ doz $4.35
Nashua Lock Co.'s.....₩ doz $18.00, dis 50 @ 55 %
Wilson's.....dis 55 %
Clipper (Sargent & Co.).....₩ doz $24, dis 50&10&10 %
Acme.....₩ doz $20.00, dis 40 %

Transom Lifters

Wollensak's Patent Iron Bronzed.....dis 50 %
Reiher's Bronzed Iron Rods list Jan. 1, 1887.dis 50&2 %
Reiher's Real Bronze or Nickel Plate, list Jan. 1, 1887.....dis 50&2 %
Excelsior.....dis 50&10&2 %
Shaw's.....dis 50&10 %
Payson's Universal.....dis 40 @ 40&10 %
Crown and Star.....dis 50 %

Traps.

Game—
Newhouse.....dis 35 @ 40&5 %
Oneida Pattern.....dis 60&10&10 @ 70 %
Game, Blake's Patent.....dis 40&10&5 %

Mouse and Rat—
Mouse, Wood, Choker.....₩ doz holes, 11@12¢
Mouse, Round Wire.....₩ doz $1.50, dis 10 %
Mouse, Cage, Wire.....₩ doz $2.50, dis 10 %
Mouse, Catch-'em-alive.....₩ doz $2.50, dis 15 %
Mouse, "Bonanza".....₩ gross $10 net
Mouse, Delusion.....₩ gross $18.00, dis 15 %
Rat, "Decoy".....₩ gross $10.00, dis 10 %
Ideal.....₩ gross $1[illegible]
Cyclone.....₩ gross $5.25
Hotchkiss Metallic Mouse, 5-hole traps....₩ doz 90¢
In full cases.....₩ doz 75¢

Trowels.

Lothrop's Brick and Plastering.....dis 22 %
Reed's Brick and Plastering.....dis 15 %
Disston's Brick and Plastering.....dis 25 @ 25&10 %
Peace's Plastering.....dis 25 %
Clement & Maynard's.....dis 20 %
Rose's Brick.....dis 15 @ 20 %
Brade's Brick.....dis 25 %
Worrall's Brick and Plastering.....dis 20 %
Garden.....dis 70 %

Triers.—Butter and Cheese.....dis 25 %

Trucks, Warehouse, &c.

B. & L. Block Co.'s list, 1882.....dis 40 %

Tubes, Boiler.—See Pipe

Twine.

	BC.	B.
No. 9, Flax Twine, ¼ and ½ ℔ Balls	22¢	50¢
No. 12, " " ¼ and ½ "	21¢	29¢
No. 18, " " ¼ and ½ "	18¢	28¢
No. 24, " " ¼ and ½ "	18¢	28¢
No. 36, " " ¼ and ½ "	16¢	27¢
No. 204, Mattrass, ¼ and ½ "	48 @ 50¢	
Chalk Line, Cotton, ½ ℔ Balls	25¢	
Mason Line, Linen, ½ "	55¢	
2-Ply Hemp, ¼ and ½ ℔ Balls (Spring Twine)	11½¢	
3-Ply Hemp, 1 ℔ Balls	12 @ 12½¢	
3-Ply Hemp, 1½ ℔ Balls	11 @ 11½¢	
Cotton Wrapping, 5 Balls to ℔	15¢ @ 16¢	
2, 3, 4 and 5 Ply Jute, ½ ℔ Balls	10¢	
Wool	6½¢ @ 6¾¢	
Paper	13¢ @ 14¢	
Cotton Mops—6, 9, 12 and 15 ℔ to doz	18¢	

Vises.

Solid Box.....dis 50&10&5 @ 60 %

Parallel—
Fisher & Norris Double Screw.....dis 15&10 %
Stephens'.....dis 25 @ 30 %
Parker's.....dis 20 @ 25 %
Wilson's.....dis 55 %
Howard's.....dis 40 %
Bonney's.....dis 40&10 %
Millers Falls.....dis 40 @ 40&10 %
Trenton.....dis 40&5 @ 40&10 %
Merrill's.....dis 15@20 %
Sargent's.....dis 60&10&10 %
Backus and Union.....dis 40 %
Double Screw Leg.....dis 15&10 %
Prentiss.....dis 30&5 @ 25 %
Simpson's Adjustable.....dis 40 %

Saw Filers—
Bonney's, Nos. 2 & 3.....₩ doz $15.00, dis 40&10 %
Stearn's.....dis 33⅓&10 @ 33⅓&10&10 %
Stearn's Silent Saw Vises.....dis 33⅓ @ 35 %
Sargent's.....dis 60&10&10 %
Hopkins'.....₩ doz $17.50, dis 10 %
Reading.....dis 40&10 %
Wentworth.....dis 30&10 %
Combination Hand Vise.....₩ gro, $42.00
Cowell Hand Vises.....dis 30 %
Bauer's Pipe Vises.....dis 10 %

Wagon Boxes.

Per lb.....3½¢

Wagon Jacks.

Daisy.....₩ doz $4.00, dis 25 %

Washer Cutters.

Smith's Patent.....₩ doz $13.00, dis 40&10&10 %
Johnson's.....₩ doz $11.00, dis 33⅓ %
Penny's.....₩ doz Pol. $14; Jap'd, $16..dis 55 %
Appleton's.....₩ doz $18.00, dis 60&10 %
Bonney's.....dis 30&10 %

Washers.

Size	¼	5-16	⅜	½	⅝	¾	1
Washers	7	5⅝	4¾	3¾	3¼	3¼	3¼

In lots less than 200 ℔, ₩ ℔, add ½¢, 5-℔ boxes 1¢ to list

Wedges.—Iron.....₩ ℔ 3½¢
Steel.....₩ ℔ 4¢

Well Buckets, Galvanized.

Hill's.....₩ doz ..12 qt., $4.25; 14 qt., $5.25
Iron Clad.....₩ doz., 14 qt., $4.25 @ $4.50
Whiting's Flat Iron Band.....₩ doz $4.25 @ $4.50
Whiting's Wired Top.....₩ doz $4.00 @ $4.25

Well Wheels—8 in., $2.25; 10 in., $2.70; 12 in., $3.25.

Wire.

Iron—
Market, Br. & Ann., Nos. 0 to 18.....dis 75@75&5 %
Market, Coppered, Nos. 0 to 18.....dis 70@70&10 %
Market, Galvanized, Nos. 0 to 18.....dis 65&10 %
Market, Tin'd, Tinned list Nos. 0 to 18.....dis 67½@67½&5 %
Stone Br. & Ann'd, Nos. 16 to 18.....dis 72½&5@75 %
Stone, Bright & Ann'd, Nos. 19 to 26..dis 75&5@75&10 %
Stone, Br. & Ann'd, Nos. 27 to 36...dis 75&10&15@80 %
Stone, Tin'd, Tin'd list, Nos. 18 to 34..dis 70&10@75 %
Tinned Broom Wire, Nos. 13 to 24.....dis 72½@75 %
Galvanized Fence.....dis 65@65&5 %
Annealed Fence, Nos. 8 & 9.....dis 75@75&5 %
Annealed Grape, Nos. 10 to 14.....dis 75@75&5 %
Brass and Copper, list, Jan. 1, '84.....dis 15 @ 20 %
Barb Fence.....See Trade Report
Wire on Spools.....dis 65 %
Malin's Steel and Tinned Wire on Spools.....dis 50 %
Malin's Brass and Copper Wire on Spools.....dis 40 %
Cast Steel Wire.....dis 50 %
Stubs' Steel Wire.....$6.00 to $, dis 30 %
Steel Music Wire, Nos. 13 to 30.....55¢ ₩ ℔
Picture Wire.....dis 60&10 %
Barb Wire Safety Guards.....₩ 1000 $9.00, dis 25 %
Wire Clothes Lines. See Lines.

Wire Cloth, Netting, &c.

Painted Screen Cloth, No. 34, ₩ 100 sq ft.....$1.90
Painted Screen Cloth, No 33, ₩ 100 sq. ft.....$2.00
Galvanized Wire Netting.....dis 70&10 @ 75 %

Wire Goods.—See Bright Wire Goods.

Wire Rope.—List May 1, 1886.....dis 33⅓ %

Wrenches.—American Adjustable.....dis 45 %
Baxter's Adjustable "S".....dis 40&10 @ 50 %
Baxter's Diagonal.....dis 40&10 @ 50 %
Coes' Genuine.....dis 55&3 %
Coes' "Mechanics".....dis 55&10&3 %
Girard Standard.....dis 70&10 %
Lamson & Sessions' Engineers'.....dis 60&10 %
Lamson & Sessions' Standard.....dis 70&10 %
Coes' Pattern, Wrought.....
Girard Agricultural.....
Lamson & Sessions' Agricultural.....dis 30 @ 30&5 %
Sterling Wrought.....

Bemis & Call's Patent Combination.....dis 35 %
Bemis & Call's Merrick's Pattern.....dis 35 %
Bemis & Call's Brigg's Pattern.....dis 25 %
Bemis & Call's Cylinder or Gas Pipe.....dis 40&5 %
Bemis & Call's No. 3 Pipe.....dis 35&5 %
Aiken's Pocket (Bright).....$3.00, dis 50&10 %
The Favorite Pocket (Bright).....₩ doz $4.00, dis 40¢
Webster's Patent Combination.....dis 25 %
Boardman's.....dis 30 @ 25 %
Always Ready.....dis 25&5 %
Alligator.....dis 50 %
Donohue's Engineer.....dis 25 %
Acme, Bright.....dis 60&3 %
Acme, Nickeled.....dis 50&3%
Walker's.....dis 55&3 %
Diamond.....dis 40 %
Diamond Patent Steel.....dis 40 %

Wringers, Clothes.

List Jan. 10 1888, $2.60 off.

Wrought Goods.

Staples Hooks, &c., is Jan. 12, '87, dis 50&20@50&25 %

CURRENT METAL PRICES.

JULY 25, 1888.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron :
¾ to 2 in. round and square.. } ℘ ℔ 1.90 @ 2.00¢
1 to 6 in. x ⅜ to 1 in...... }
Refined Iron :
¾ to 2 in. round and square.. }
1 to 4 in. x ⅜ to 1½ in........ } ℘ ℔ 2.10 @ 2.25¢
4½ to 6 in. x ⅜ to 1 in .... }
1 to 6 in. x ¼ and 5-16 ....℘ ℔ 2.30 @ 2.45¢
Rods—⅝ and 11-16 round and sq..℘ ℔ 2.20 @ 2.35¢
Bands—1 to 6 x 3-16 to No. 12.....℘ ℔ 2.30 @ 2.45¢
"Burden Best" Iron, base price..℘ ℔ 3.00 @ ... ¢
Burden's "H. B. & S." Iron, base price.......℘ ℔ 2.80 @ ....¢
"Ulster"..........℔ ℔ 3.10 @ ....¢
Norway Rods ....4.00 @ 5.00¢

Merchant Steel from Store.

Per pound.
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots.... ....2¾¢ @ 3¢
Best Cast Steel, base price in small lots 8¾¢ @ 9¢
Best Cast Steel Machinery, base price in small lots ....5½¢ @ 6¢

For Classification and Extras adopted by the Merchant Steel Association of the United States, June 1, 1888, see *The Iron Age*, June 21, 1888.

Sheet Iron from Store.

	Common American.		R. G. Cleaned.	
10 to 16	℘ ℔ 2.75	@ 2.80¢	3.25	@ ......¢
17 to 20	℘ ℔ 2.85	@ 3.00¢	3.25	@ 3.50 ¢
21 to 24	℘ ℔ 3.00	@ 3.10¢	3.50	@ ......¢
25 and 26	℘ ℔ 3.20	@	3.50	@ ......¢
27	℘ ℔ 3.35	@ 3.37½¢	3.75	@ ......¢
28	℘ ℔ 3.50	@ ......¢	4.00	@ ......¢

	B. B.		2d qual.	
Galv'd, 14 to 20	℘ ℔, 4.50	@	4.38	@ ......¢
Galv'd, 21 to 24	℘ ℔, 4.87½	@	4.75	@ ......¢
Galv'd, 25 to 26	℘ ℔, 5.25	@	5.12	@ ......¢
Galv'd, 27	℘ ℔, 5.62½	@	5.48	@ ......¢
Galv'd, 28	℘ ℔, 6.00	@	5.85	@ ......¢

Patent Planished.............℘ ℔ A 10¢ B, 9¢
Russia..................℘ ℔ 9½¢ @ 10¢
American Cold Rolled B. B.........℘ ℔ 5¢ @ 7¢

English Steel from Store.

Best Cast ....℘ ℔ 15 ¢
Extra Cast ....℘ ℔ 16½ @ 17 ¢
Swaged, Cast.......................℘ ℔ 16 ¢
Best Double Shear..................℘ ℔ 15 ¢
Blister, 1st quality................℘ ℔ 12½¢
German Steel, Best.................℘ ℔ 10 ¢
2d quality........................℘ ℔ 9 ¢
3d quality........................℘ ℔ 8 ¢
Sheet Cast Steel, 1st quality.......℘ ℔ 15 ¢
2d quality........................℘ ℔ 14 ¢
3d quality........................℘ ℔ 12½¢

METALS.

Tin.

Per ℔
Banca, Pigs..........................24¢
Straits, Pigs........................22¢
English, Pigs........................24¢
Straits in Bars ....23¢ @ 24¢

Tin Plates.

Charcoal Plates—Bright. Per box.

Melyn Grade	IC 10 x 14	$5.75 @	$6.00
" "	IC, 12 x 12	6.00 @	6.25
" "	IC, 14 x 20	5.75 @	6.00
" "	IC, 20 x 28	12.25 @	12.50
" "	IX, 10 x 14	7.25 @	7.50
" "	IX, 12 x 12	7.50 @	7.75
" "	IX, 14 x 20	7.25 @	7.50
" "	IX, 20 x 28	15.25 @	15.50
" "	DC, 12½ x 17	5.50 @	5.75
" "	DX, 12½ x 17	7.00 @	7.25
Calland Grade	IC, 10 x 14		$6.00
" "	IC, 12 x 12		6.25
" "	IC, 14 x 20		6.00
" "	IX, 10 x 14		7.50
" "	IX, 12 x 12		7.75
" "	IX, 14 x 20		7.50
Allaway Grade	IC, 10 x 14	$5.25 @	...
" "	IC, 12 x 12	5.50 @	....
"	IC, 14 x 20	5.25 @	....
"	IC, 20 x 28	10.75 @	....
"	IX, 10 x 14	6.25 @	....
"	IX, 12 x 12	6.50 @	....
" "	IX, 14 x 20	6.25 @	....
" "	IX, 20 x 28		12.50
" "	DC, 12½ x 17	5.00 @	...
" "	DX, 12½ x 17	6.00 @	....

Coke Plates—Bright.

Steel Coke.—IC,	10 x 14, 14 x 20	$4.80 @	....
	10 x 20	7.50 @	7.65
	20 x 28	10.00 @	10.15
IX,	10 x 14, 14 x 20		5.65
BV Grade.—IC,	10 x 14, 14 x 20	4.70 @	...

Charcoal Plates.—Terne.

Dean Grade.—IC,	14 x 20	$4.62½ @	...
	20 x 28	9.25 @	....
IX,	14 x 20	5.62½ @	....
	20 x 28	11.87½ @	....
Abecarne Grade.—IC,	14 x 20	4.50 @	....
	20 x 28	9.00 @	....
IX,	14 x 20	5.50 @	...
	20 x 28		10.80

Tin Boiler Plates.

IXX, 14 x 26	112 sheets	$12.50 @	$12.75
IXX, 14 x 28	112 sheets	12.75 @	
IXX, 14 x 31	112 sheets	14.25 @	

Copper.

Duty: Pig, Bar and Ingot, 4¢; Old Copper, 3¢ ℘ ℔. Manufactured (including all articles of which Copper is a component of chief value), 45 % ad valorem.

Ingot.

Lake...................................@ 17.50¢
"Anchor" Brand.........................@ 17¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, December 10, 1887, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
			Weights per square foot and prices per pound.							
30	72		25	25	25	26	27	28	31	33
30		72	25	25	25	26	28	30	34	...
36	96		25	25	25	27	29	33	36	....
36		96	25	25	26	28	30	34	38	....
48	96		25	25	27	29	31	35	....	....
48		96	25	25	28	30	32	36	....	....
60	96		25	25	30	32	37	....	....	...
60		96	25	26	31	....	....	....	....	....
84	96		26	27	..	....	...	..	....	....
84		96	27	28	....	....	....		..	....
Over 84 in. wide			28	30	...	....	....	....	....	....

All Bath Tub Sheets	16 oz.	14 oz.	12 oz.	10 oz.
Per pound	$0.28	0.30	0.32	0.35

Bolt Copper, ⅝ inch diameter and over, per pound.................25¢
Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.
Circles, over 60 inches diameter, up to 96 inches diameter, inclusive, 5 cents per pound advance over lowest prices of Sheet Copper of the same thickness.
Circles, over 96 inches diameter, 6 cents per pound advance over lowest prices of Sheet Copper of the same thickness.
Segment and Pattern Sheets, 3 cents per pound advance over price of sheets required to cut them from.
Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, 1 cent per pound over the foregoing prices.
Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, 2 cents per pound over the foregoing prices.

Copper Bottoms, Pits and Flats.

Per pound.
14 ounce to square foot and heavier..........28¢
12 ounce and up to 14 ounce to square foot.....29¢
10 ounce and up to 12 ounce...................31¢
Circles less than 8 inches diameter 2 cents per pound additional.
Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each.......................8¢
Tinning sheets on one side, 30 x 60 each.......30¢
For tinning boiler sizes, 9 in (sheets 14 in. x 60 in.), each.......................15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each.......................12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each.......................12¢
Tinning sheets on one side, other sizes, per square foot.......................2½¢
For tinning both sides double the above prices.

Planished Copper.

Planished Copper List May 5, 1888 ....Net

Brass and Copper Tubes.

Seamless Copper.		Seamless Brass.	
⅜ inch ℘ ℔	50¢	⅜ inch ℘ ℔	47¢
½ " "	44¢	½ " "	41¢
⅝ " "	42¢	⅝ " "	39¢
¾ " "	40¢	¾ " "	37¢
⅞ " "	39¢	⅞ " "	36¢
1 " "	37¢	1 " "	34¢
1⅛ " "	34¢	1⅛ " "	31¢

Roll and Sheet Brass.

Discount from list...................10 @ 15 %

Spelter.

Duty: Pig, Bars and Plates, $1.50 ℘ 100 ℔.
Western Spelter. ....5 @ 5¼¢
"Bergenport"........................8¾¢
"Bertha"........................7¾ @ 8¢

Zinc.

Duty; Sheet, 2½¢ ℘ ℔.
600 ℔ casks..........................6½¢
Per ℔ ....7¢

Lead.

Duty: Pig, $2 ℘ 100 ℔. Old Lead, 2¢ ℘ ℔. Pipe and Sheets, 3¢ ℘ ℔.
American...........................@ 4½¢
Newark.............................@ 4½¢
Bar................................@ 4¾¢
Pipe, subject to trade discount.........6½¢
Tin-Lined Pipe, subject to trade discount.......15¢
Block Tin Pipes, subject to trade discount......40¢
Sheet, subject to trade discount.........7¼¢

Solder.

½ @ ½ (Guaranteed)......................15¢
Extra Wiping.............................13¢
The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson.....................℘ ℔ 13¾ @ 14¢
Hallett's..........................." 11½¢

Plumbers' Brass Work.

Discount per cent.
Ground Bibbs and Stops..................55&10&2
Ground Stops, Hydrant Cocks, &c.........55&10&2
Corporation Cocks ....55&10&2
Corporation Cocks, "Mueller" Pattern, from Western list...........55&10&2
Ground Basin and Shampooing Cocks....50&10&2
Compression Basin Cocks ....50&10&2
Compression Basin and Sink Cocks.......50&10&2
Compression Pantry Cocks...............50&10&2
Compression Double Basin and Shampooing Cocks ....50&10&2
Compression Double Bath Cocks..........50&10&2
Compression Bibbs, Urinal Cocks, Sill Cocks, Stops, Hopper Cocks, Hydrant Cocks and Ball Cocks............50&10&2
Basin Plugs and Basin Grates............55&10&2
Bath and Wash Tray Plugs................55&10&2
Bath Wastes and Washers, Bath and Basin Valves, Sewer and Vacuum Valves, Cistern Valves, Pump Valves and Strainers, Ship Closet Valves and Suction Baskets. ....55&10&2
Basin Clamps, Basin Joints and Strainers 55&10&2
Boiler Couplings, Ground Face, per set $1.25..........dis 10
Boiler Couplings, Plain Face, per set $1.20...dis 10
Water Back Valve and Plain Couplings, Soldering Nipples and Unions..............55&10&2
Union Joints............................60&10&2
Hydrant Nozzles, Handles and Guides, Sockets and Clamps, Street Washer Screws and Guides..................55&10&2
Hose Goods ....55&10&2

Steam and Gas Fitters' Brass and Iron Work.

Discount per cent.
Brass Globe Valves.......................60&10&2
Finished Brass Globe Valves, with Finished Brass Wheels..................40&10&2
Brass Globe Valves, with Patent Wood Wheels. 60&10&2
Brass Globe Angle and Corner Valves.....60&10&2
Brass Radiator Angle Valves. ....60&10&2
Brass Radiator Angle Valves, Frink's Patent. 60&10&2
Brass Cross and Check Valves...........60&10&2
Brass Check Valves......................60&10&2
Brass Hose Valves.......................60&10&2
Brass and Iron Frink Valves ....60&10&2
Brass Safety Valves.....................60&10&2
Brass Vacuum Valves.....................50&10&2
Brass Whistle Valves....................60&10&2
Brass Balance, Back Pressure and Foot Valves. 50&10&2
Brass Butterfly and Throttle Valves......50&10&2
Brass Pump Valves.......................50&10&2
Brass Steam Cocks.....................57½&10&2
Brass Service, Meter and Union Meter Cocks...................57½&10&2
Brass Whistles, Water Gauges and Oil Cups.. 60&10&2
Brass Hollow Plug, Tallow and Globe Oil Cups 50&10&2
Brass Lubricators........................60&10&2
Brass Air Valves.........................60&10&2
Brass Air Cocks..........................60&10&2
Brass Gauge Cocks ....55&10&2
Brass Cylinder Cocks and Steam Bibbs...50&10&2
Brass Swing Joints and Expansion Joints.50&10&2
Brass Test Pumps.........................50&10&2
Brass Steam Fittings, Rough.............60&10&2
Brass Steam Fittings, Finished..........20&10&2
Brass Union Joints ....60&10&2
Brass Soldering Unions and Nipples ....55&10&2
Brass Hose Fittings, Fusible and Boiler Plugs.....................55&10&2
Iron Body Globe, Angle, Cross and Check Valves ....65&10&2
Iron Body Safety, Throttle, Back Pressure, Butterfly and Foot Valves..............65&10&2
Iron Cocks, all Iron ....65&10&2
All Iron Valves..........................65&10&2

Miscellaneous.

Discount per cent.
Cast Iron Fittings.........................70&10
Plugs and Bushings ....75&10
Malleable Iron Unions......................67½
Malleable Iron Fittings......................25

Paints.

Black, Lamp—Coach Painters'......℘ ℔ 22 @ 24¢
" Ordinary..............................6¢
Black, Ivory Drop, fair...............12 @ 15¢
" " best.................................23¢
Black Paint, in oil.....kegs, 8¢; assorted cans, 11¢
Blue, Prussian, fair to best..........40 @ 55¢
" " " in oil.........45 @ 55¢
" Chinese dry ....70¢
" Ultramarine.........................18 @ 30¢
Brown, Spanish..........................1¼¢
" Van Dyke.........................10 @ 12¢
Dryers, Patent American..ass'd cans, 9¢; kegs 7¢
Green, Chrome ....15 @ 23¢
Green, Chrome in oil...........14 @ 18 @ 25¢
Green, Paris............good, 20¢; best, 25¢
Green, Paris in oil ....good, 30¢; best, 35¢
Iron Paint, Bright Red...............℘ ℔ 2¼¢
Iron Paint, Brown ....℘ ℔ 1½¢
Iron Paint, Purple ....℘ ℔ 3¢
Iron Paint, Ground in oil, Bright Red....℘ ℔ 6½¢
Iron Paint, Ground in oil, Red ....℘ ℔ 5½¢
Iron Paint, Ground in oil, Brown........℘ ℔ 5½¢
Iron Paint, Ground, Purple.............℘ ℔ 6¢
Litharge................................6½¢
Mineral Paints ....2 @ 4¢
Orange Mineral ....10¢
Red Lead, American ....6½¢
Red Venetian (Eng.) dry.........$1.65 @ $1.70
Red Venetian in oil......asst'd cans, 11¢ ; kegs, 8¢
Red Indian Dry.........................9 @ 12¢
Rose Pink ....10 @ ¢